



Real Time Log

Natural Formation Evaluation  
Gamma Ray

Scale: 1:240 Measured Depth

Company: Anadarko

Well: NRC 28N-4HZ

Field: WELD COUNTY (KERR MCGEE)

Region: Rocky Mountains State: Colorado

Status: Final Print

Surface Location:

Latitude: 40° 9' 33.221" N

Longitude: 104° 53' 52.487" W

Other Services:

API Number: 05123386090000

SEC: 09 TWP: 1N RNG: 67W

Directional

Permanent Datum (P.D.): Ground Level Elevation: 5051.00 ft.

Elevations: N/A

Log Measured From: Rig Floor 16.00 ft. Above P.D.

KB: N/A  
DF: 5067.00 ft.  
GL: 5051.00 ft.

Depth Reference: Driller's Depth

Interval Logged

Dates

Magnetic Field Reference

Top: 6923.0 ft. Date From: 04/Mar/14 Dip Angle: 66.57° Azi Reference North: True

Bottom: 17103.0 ft. Date To: 12/Mar/14 Total Mag to Reference

Spud Date: 04/Mar/14 Field Strength: 52855.0 nT North Correction: 8.54°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
8.750 in.	1081.0 ft.	7900.0 ft.	9.625 in.	36.00 lb/ft	Surface	1075.0 ft.
6.125 in.	7900.0 ft.	17151.0 ft.	7.000 in.	26.00 lb/ft	Surface	7891.0 ft.

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
LSND	Surface	7900.0 ft.	8.750 in.	85.0 ft.	0.6° / 260.9°	0.3° / 222.7°
INNOVERT	7900.0 ft.	17151.0 ft.	8.750 in.	43.0 ft.	0.3° / 222.7°	86.7° / 357.1°
			6.125 in.	85.0 ft.	86.7° / 357.1°	89.9° / 1.6°
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig:	Xtreme 24	/ Xtreme Coil Drilling
PATS	6.4.1.34	Job No:	6131680	/ D & E
		District / Unit:	RMD	

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Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size  (in.)	Bit Type	Bit Gauge Length  (in.)	Assembly  Type	Logged Interval		Bit Depth Interval		Date / Time				Circ.  Time  (hrs.)
							Top	Bottom	From	To	Start		End		
							(ft.)	(ft.)	(ft.)	(ft.)					
1	1	1	8.750	PDC	2.000	Steerable	6923.0	7847.0	6976.0	7900.0	04/Mar/14	15:50	06/Mar/14	10:50	31
2	2	2	6.125	PDC	6.000	Steerable	7852.0	17103.0	7900.0	17151.0	07/Mar/14	11:45	12/Mar/14	07:00	80.1

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Osagie Otoikhine	03/Mar/14	12/Mar/14	Austin Small	03/Mar/13	12/Mar/14			

Mud Properties Record

Date / Time	LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+
05/Mar/14 18:00	1	6992.0	LSND	9.3	12	9.5	N/A	0.3/93.0	Active Pits	2400	N/A
06/Mar/14 18:00	1	7900.0	LSND	9.7	13	9.4	N/A	1.0/90.0	Active Pits	2700	N/A
08/Mar/14 18:00	2	9990.0	INNOVERT	8.7	10	N/A	19.0	58.0/34.0	Active Pits	90000	N/A
09/Mar/14 18:00	2	12926.0	INNOVERT	8.8	11	N/A	6.0	54.5/37.0	Active Pits	91000	N/A

Mnemonics		
Curve	Description	Units
GRAX	Gamma Ray Apparent 0.5 ft. Avg.	API
GRIX	Gamma Ray Density	Points
GRSI	Gamma Ray Slide Indicator	Unitless
GRTX	Gamma Ray Time Since Drilled	min
ROPA	Rate of Penetration 3.0 ft. Avg.	ft/hr
TCDX	Downhole Temperature	deg F
TVD	True Vertical Depth	ft
WOBA	Surface Weight on Bit 1.0 ft Avg.	klbf

Equipment and Service Data						
LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12466790	Directional	55.92	6.750	2.850
1	SRIG	12283328	Gamma	52.55	6.750	0.000
2	DIR	10427972	Directional	51.56	4.750	2.750
2	SRIG	11932890	Gamma	48.22	4.750	2.750

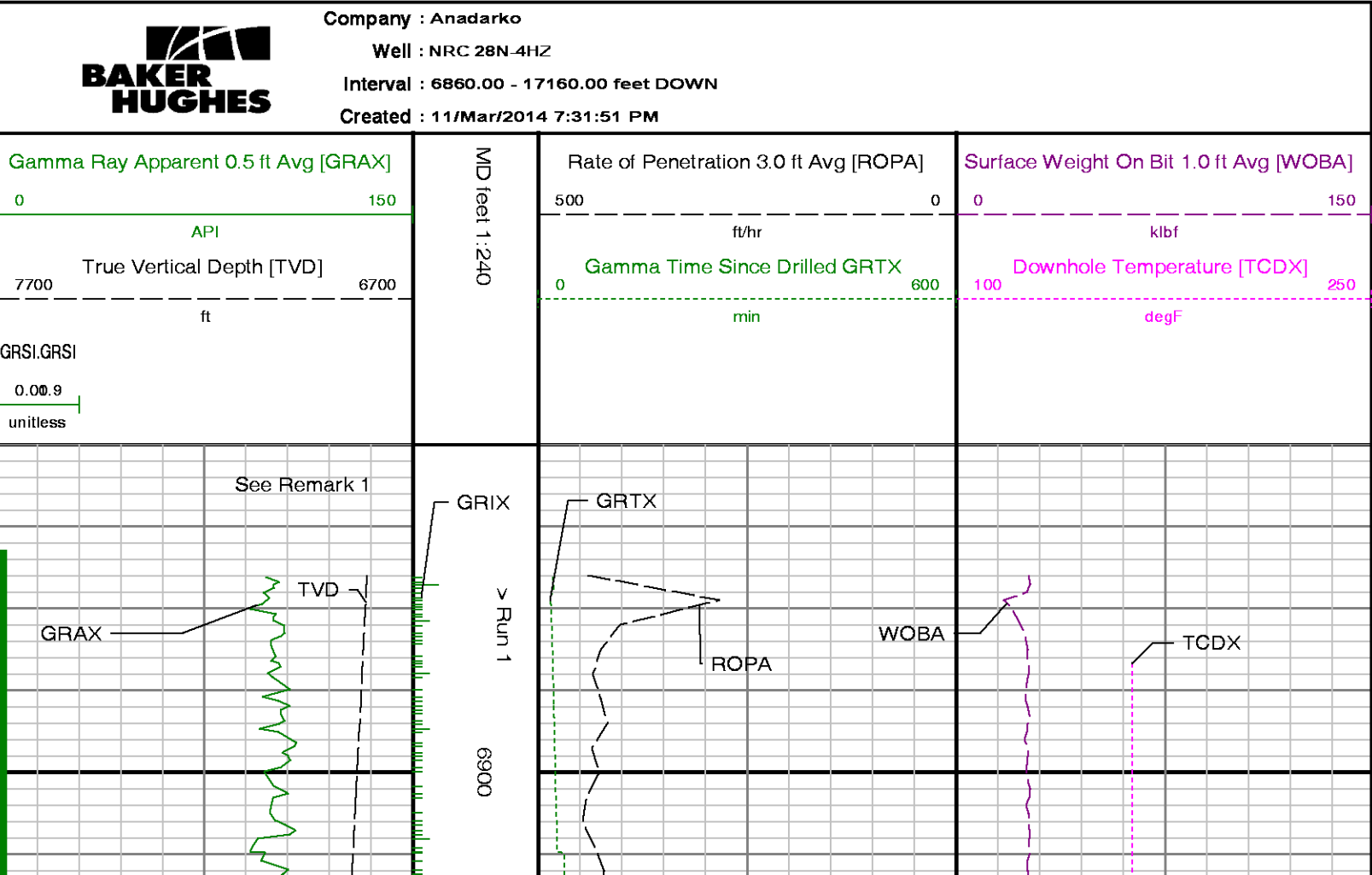
Service and Tool Mnemonics		
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

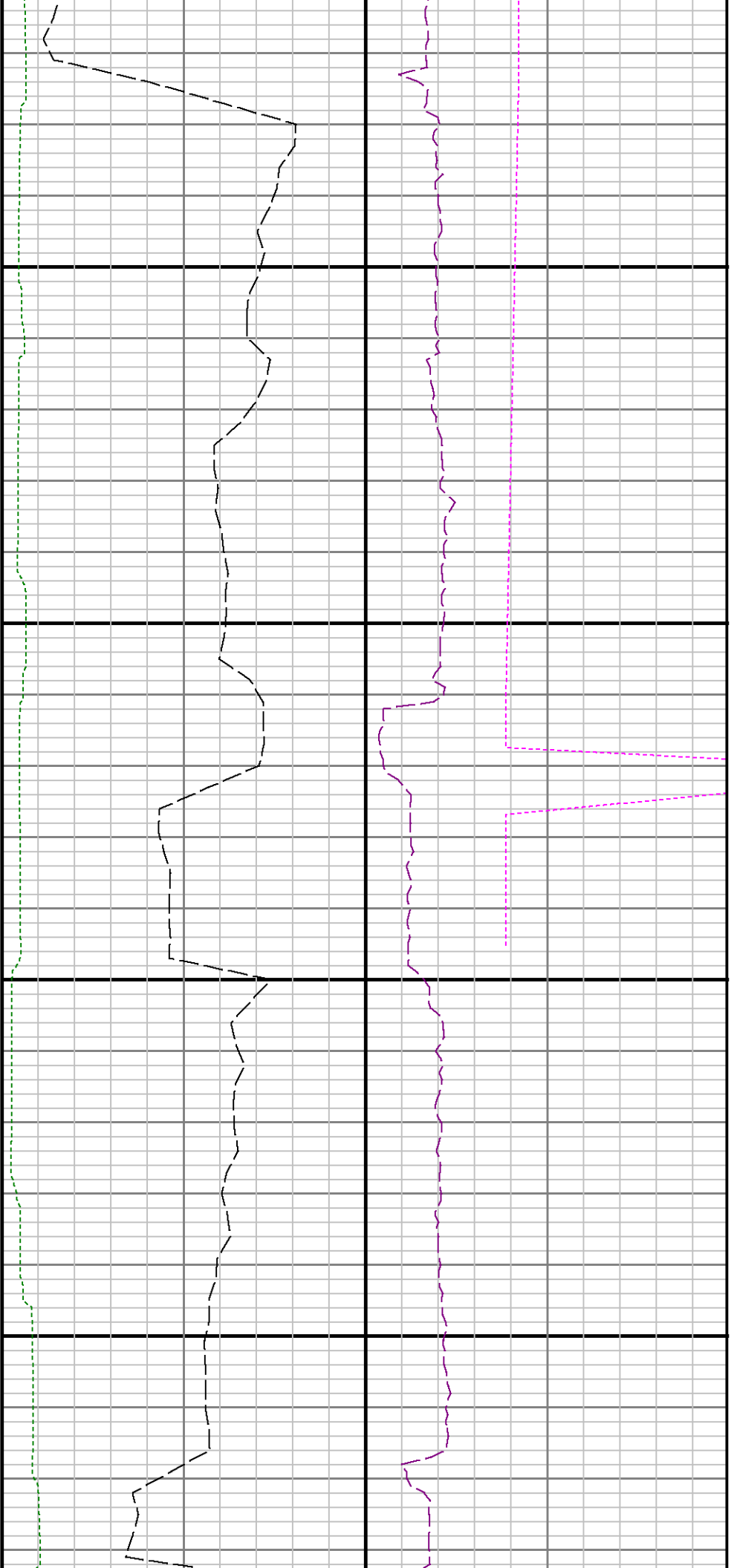
Comments	
<p>1) Baker Hughes INTEQ run 1 utilized 6 1/2 inch NaviGamma(Gamma Ray and Directional) behind a 8 3/4 inch bit and steerable assembly from 6923 feet to 7900 feet MD (6856 feet to 7481 feet TVD).</p> <p>2) Baker Hughes INTEQ run 2 utilized 4 3/4 inch NaviGamma(Gamma Ray and Directional) behind a 6 1/8 inch bit and steerable assembly from 7900 feet to 17151 feet MD (7481 feet to 7478 feet TVD).</p> <p>3) A sliding indicator is shown to the left edge of track 1 as a heavy line. The indicator has been depth-shifted to the gamma sensor offset to correspond with gamma data acquired while sliding.</p>	

Remarks				
Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark

1	6865	8.750	1	The interval from surface to 6923 feet MD (6856 feet TVD) was not logged since logging services began at kick off point.
2	7863	8.750	2	Interval from 7846 feet to 7900 feet MD (7478 feet to 7481 feet TVD) was logged more than 47 hours after drilling due to tripping for casing and cementing operations and picking up lateral BHA.
3	17118	6.125	2	Interval from 17103 feet to 17151 feet MD (7478 feet to 7478 feet TVD) was not logged due to gamma ray sensor offset at well TD.

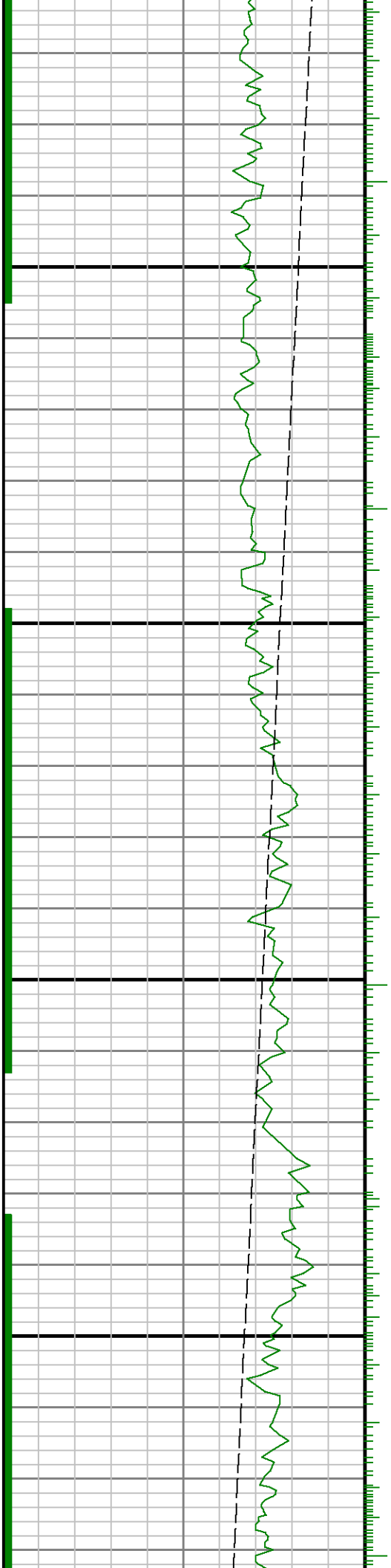
Curve Mnemonics		
Curve	Description	Units
BTSI	LAS.BTSI	unitless
GRAX	Gamma Ray - Apparent	API
GRIX	Gamma Ray - Data Point Indicator	unitless
GRSI	GRSI.GRSI	unitless
GRSIM	Gamma Ray Sliding Indicator	unitless
GRTX	Gamma Time Since Drilled GRTX	min
ROPA	AVERAGE Instantaneous ROP - 5 second ROP	ft/hr
TCDX	Downhole Temperature	degF
TVD	True Vertical Depth	ft
WOB_AVG	AVERAGE Weight On Bit	klbf

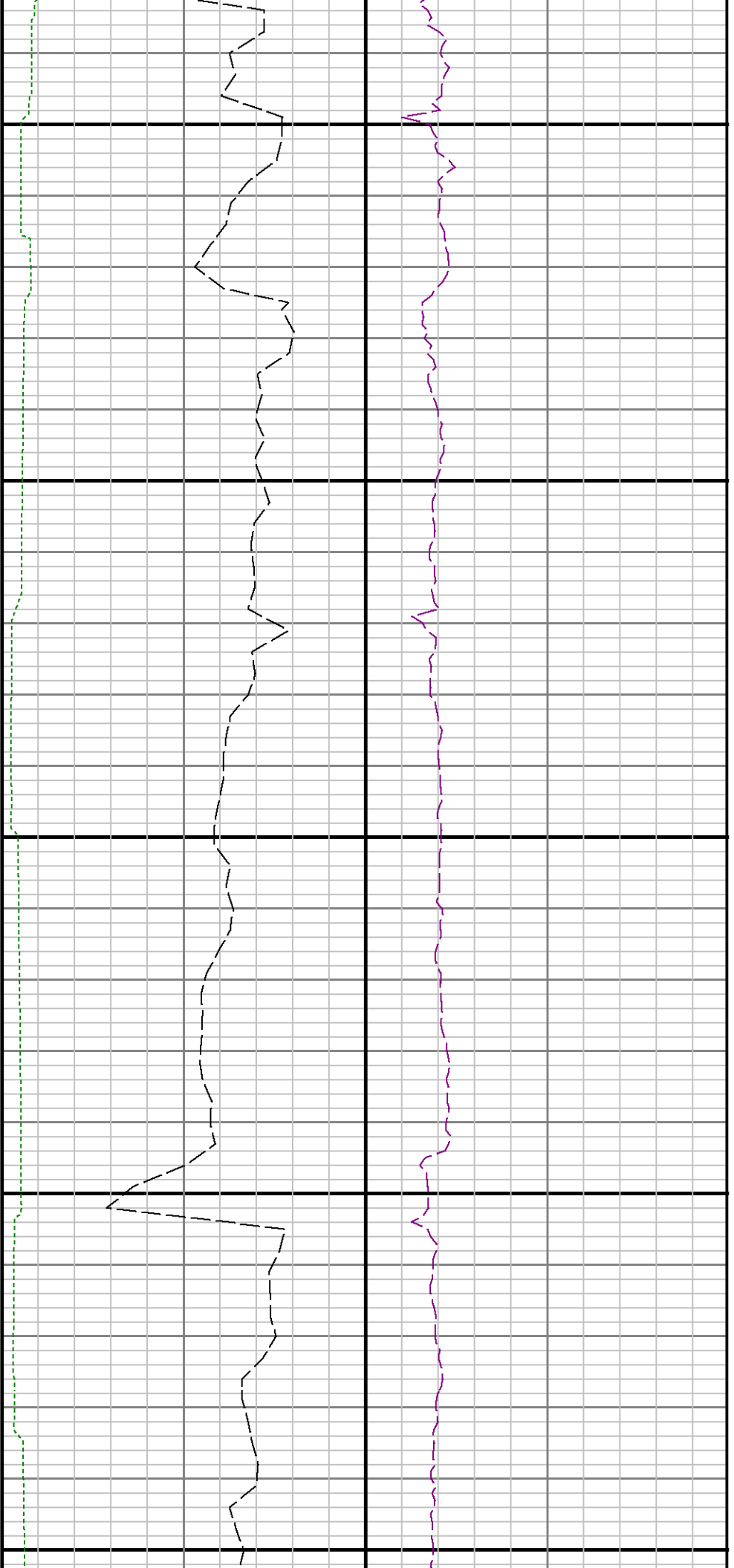




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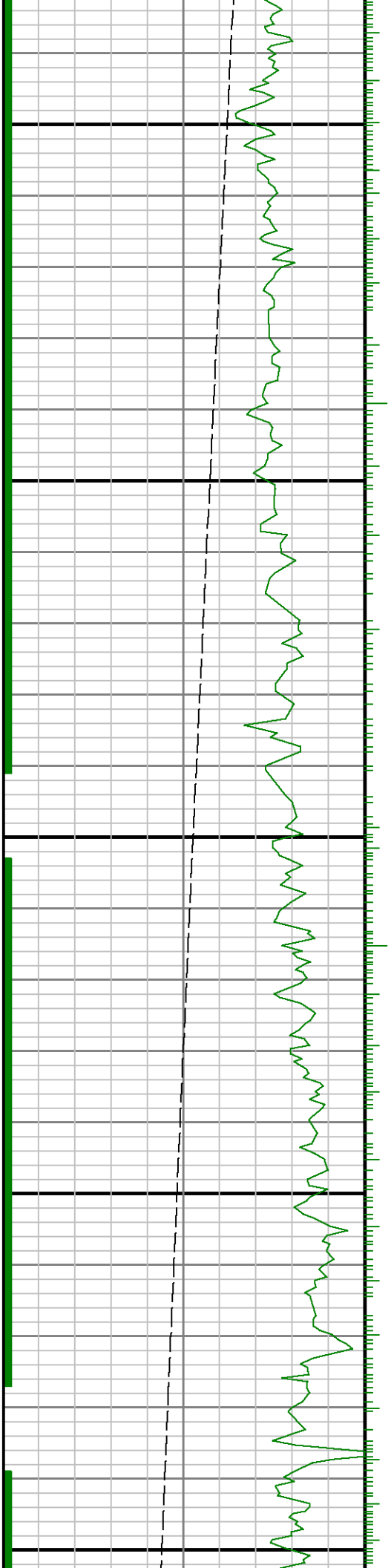
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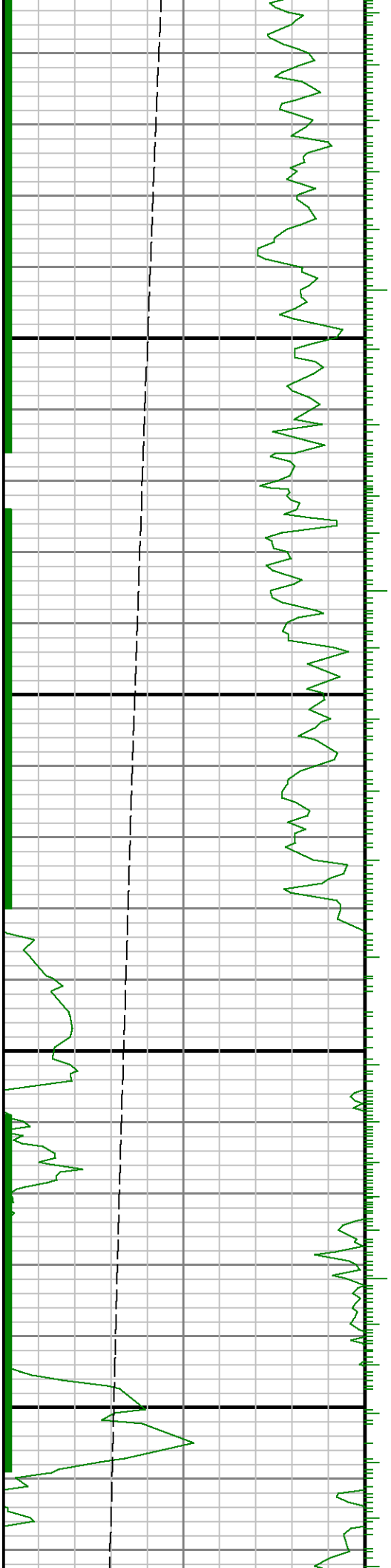
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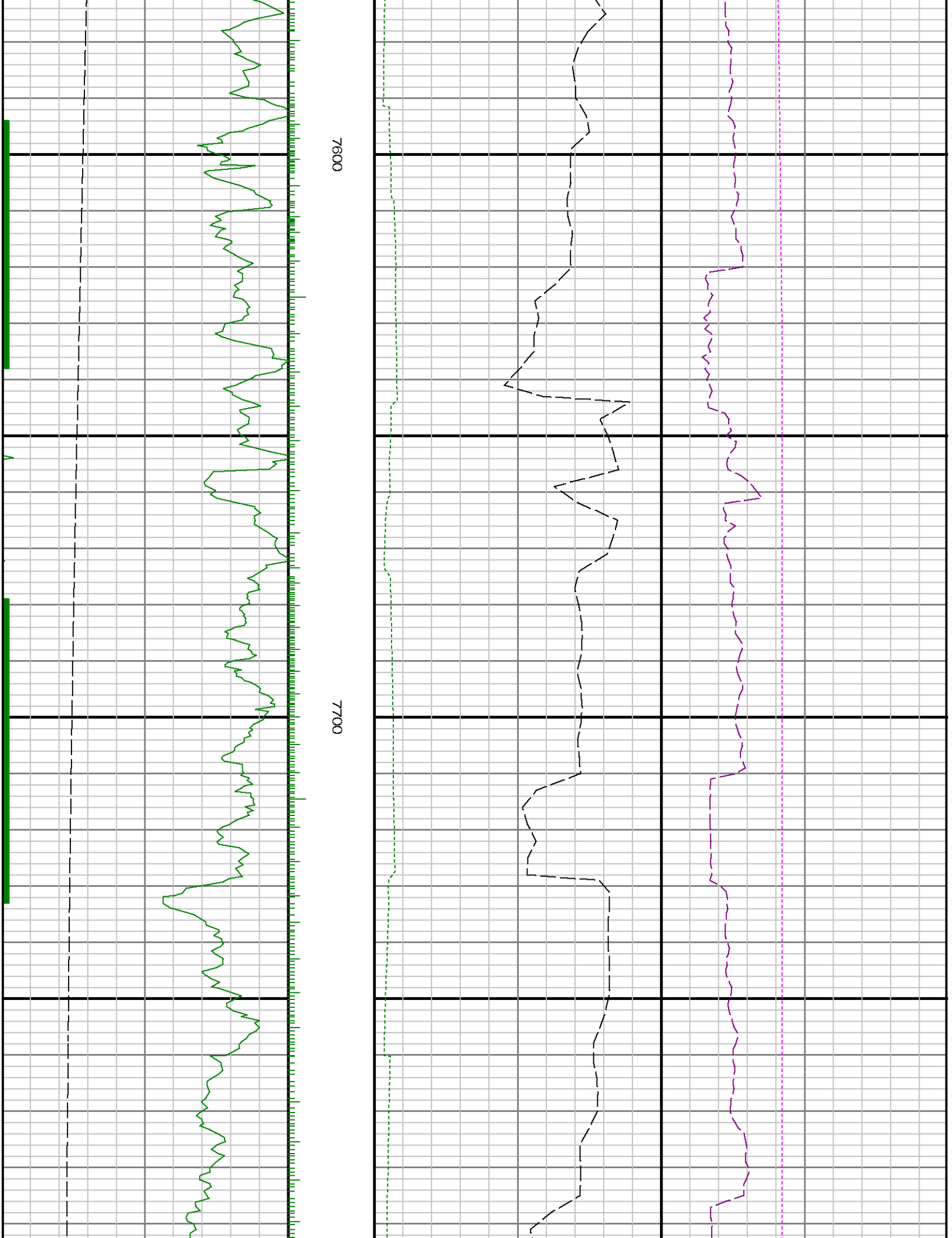


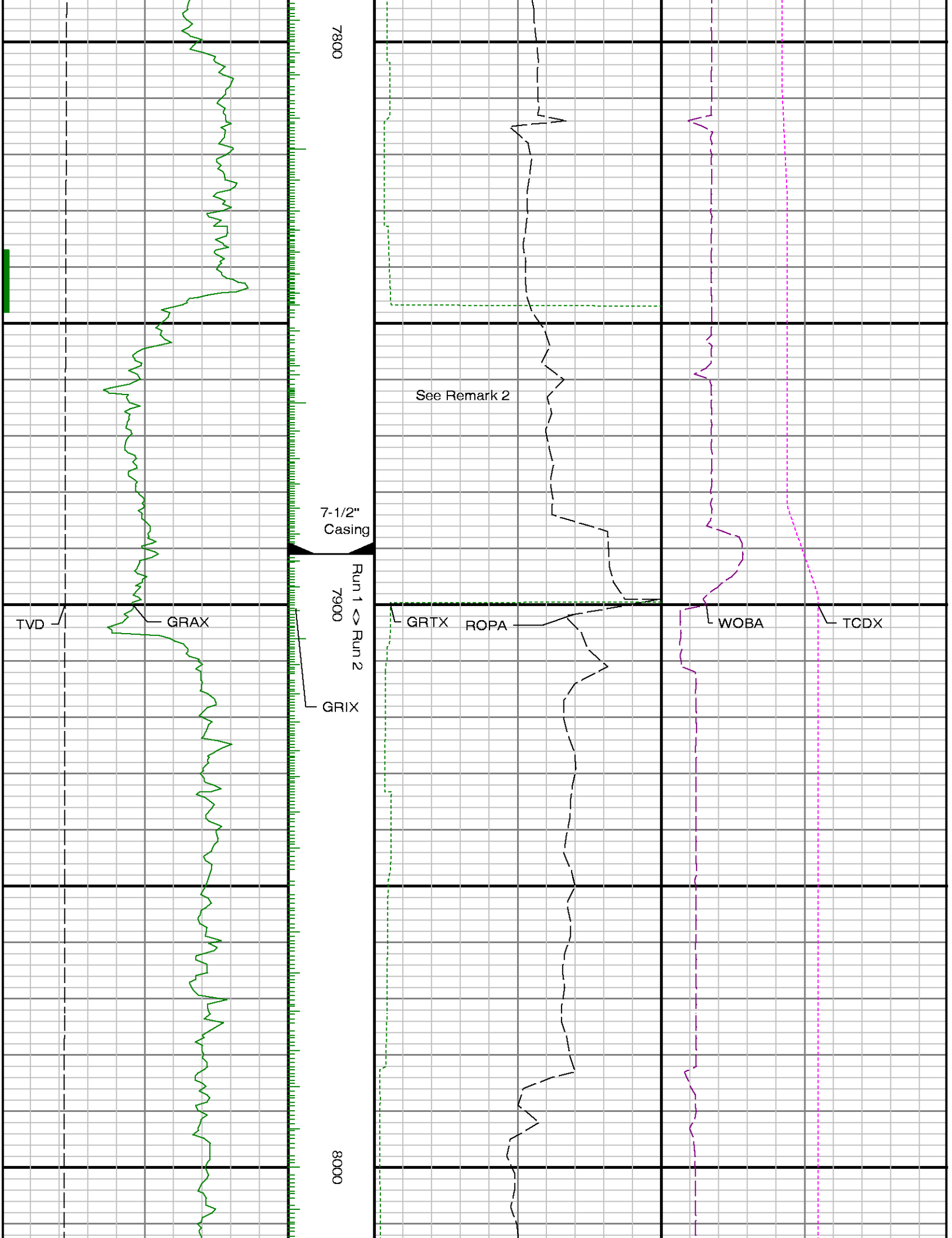


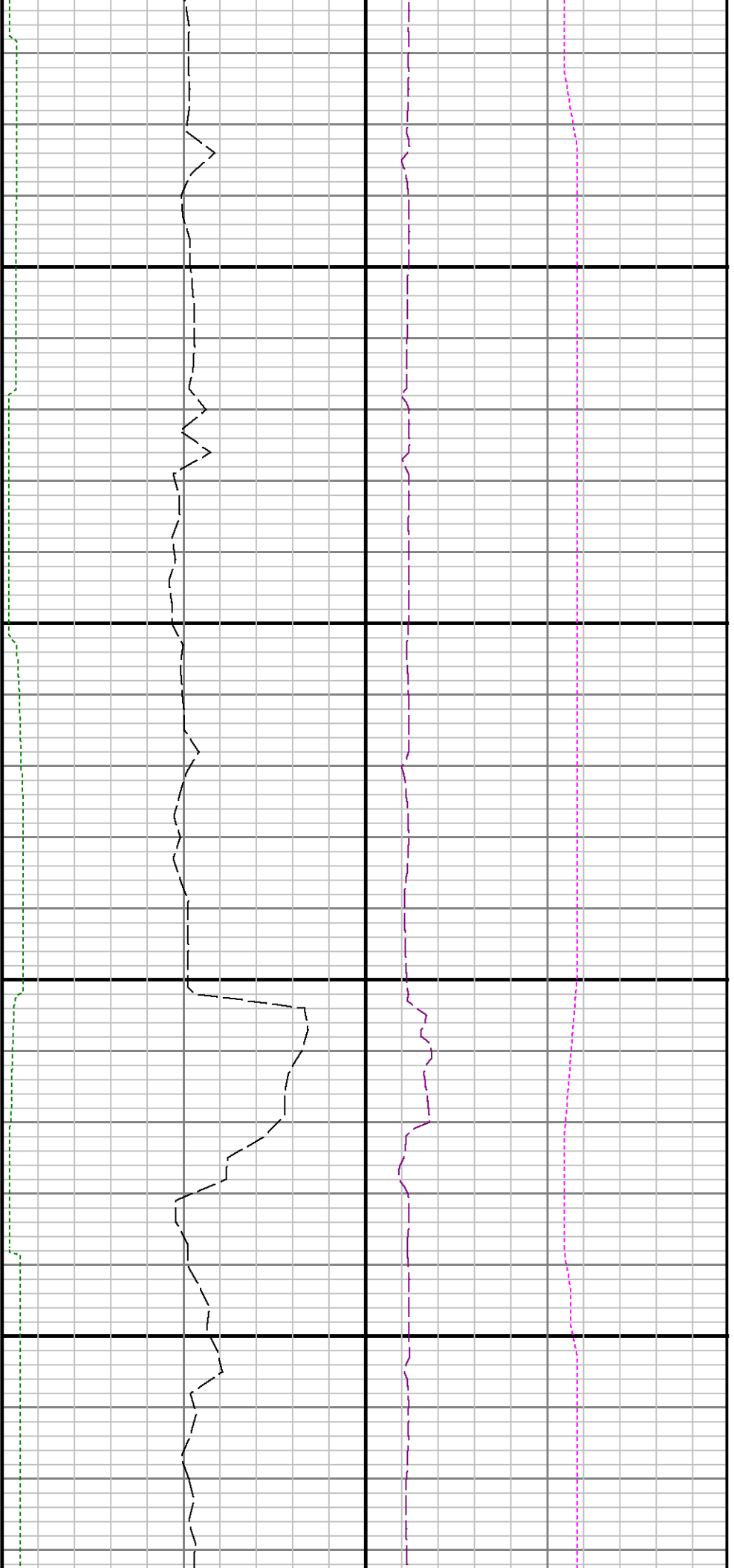
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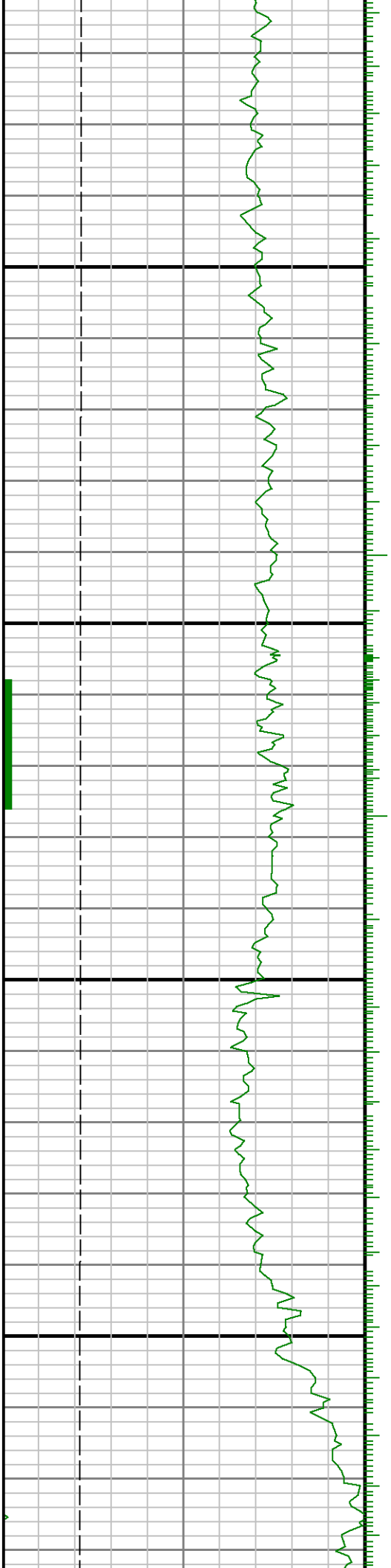


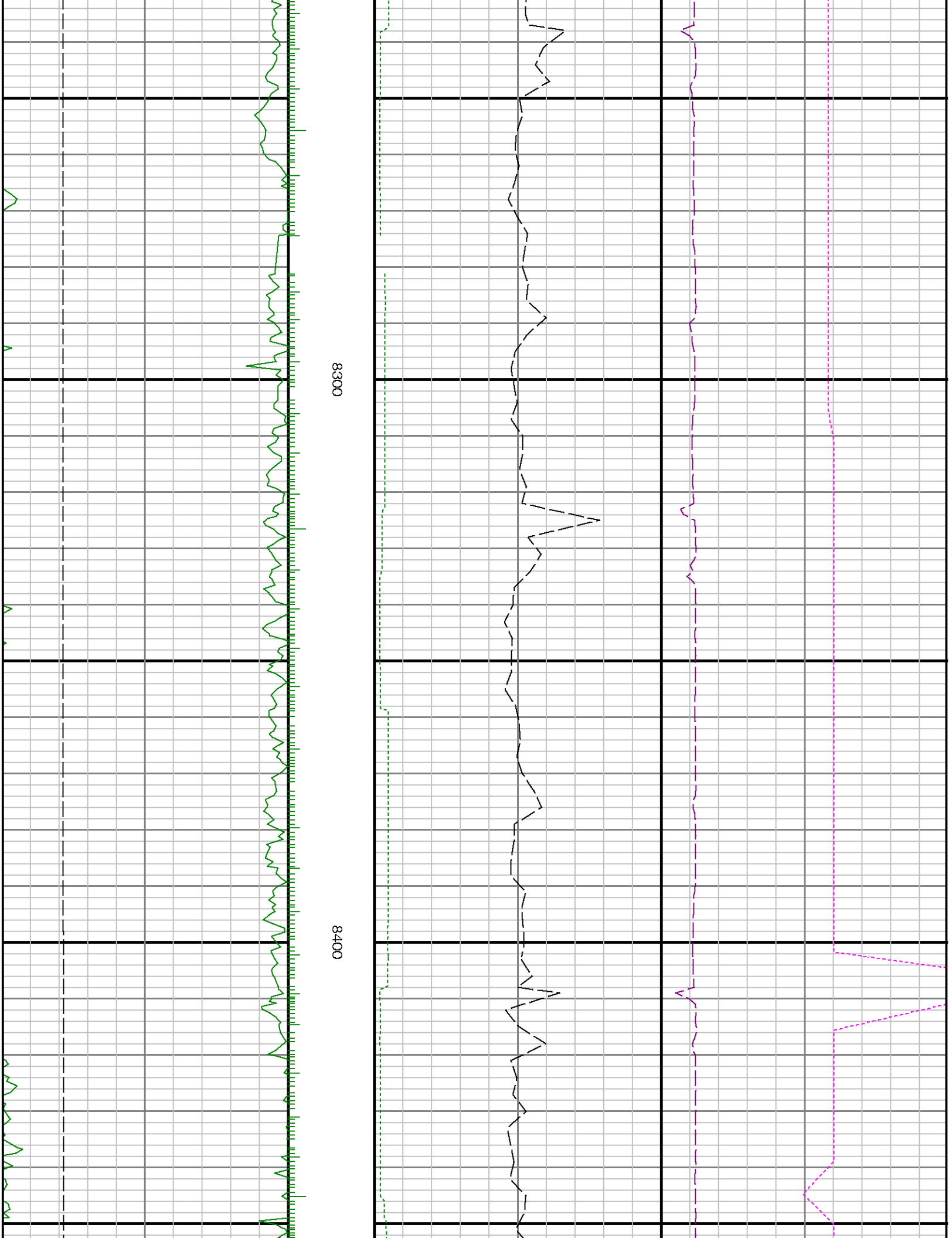


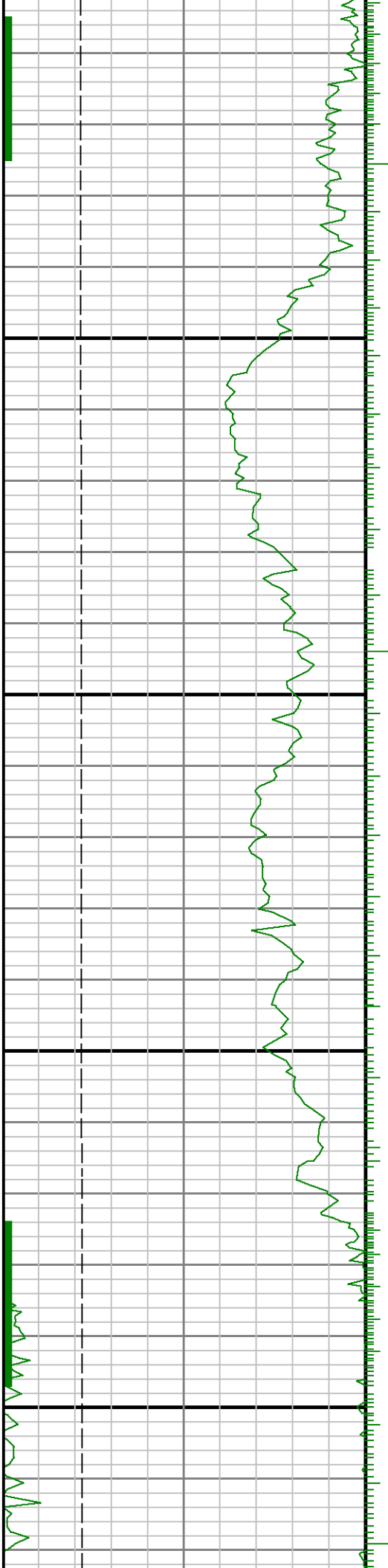


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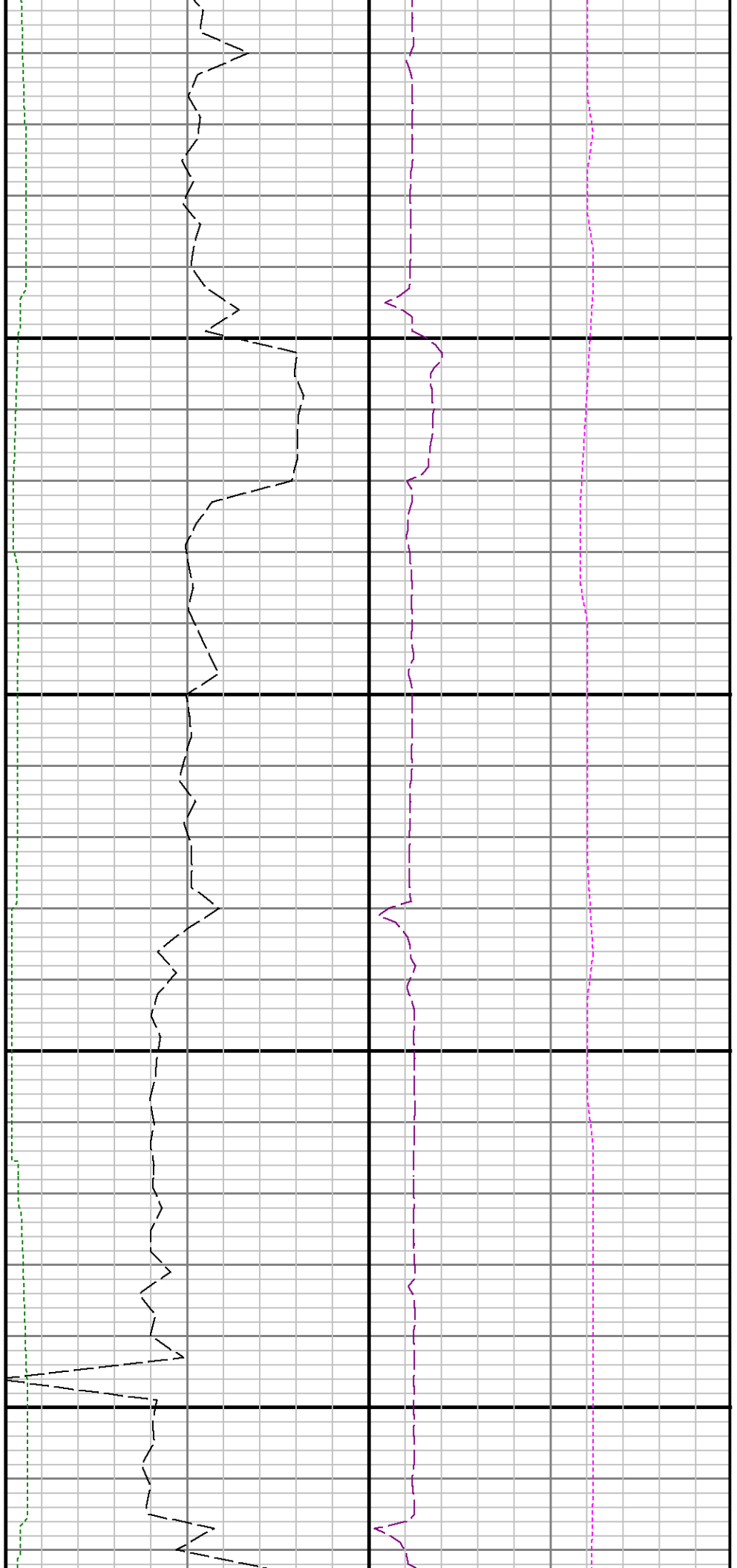


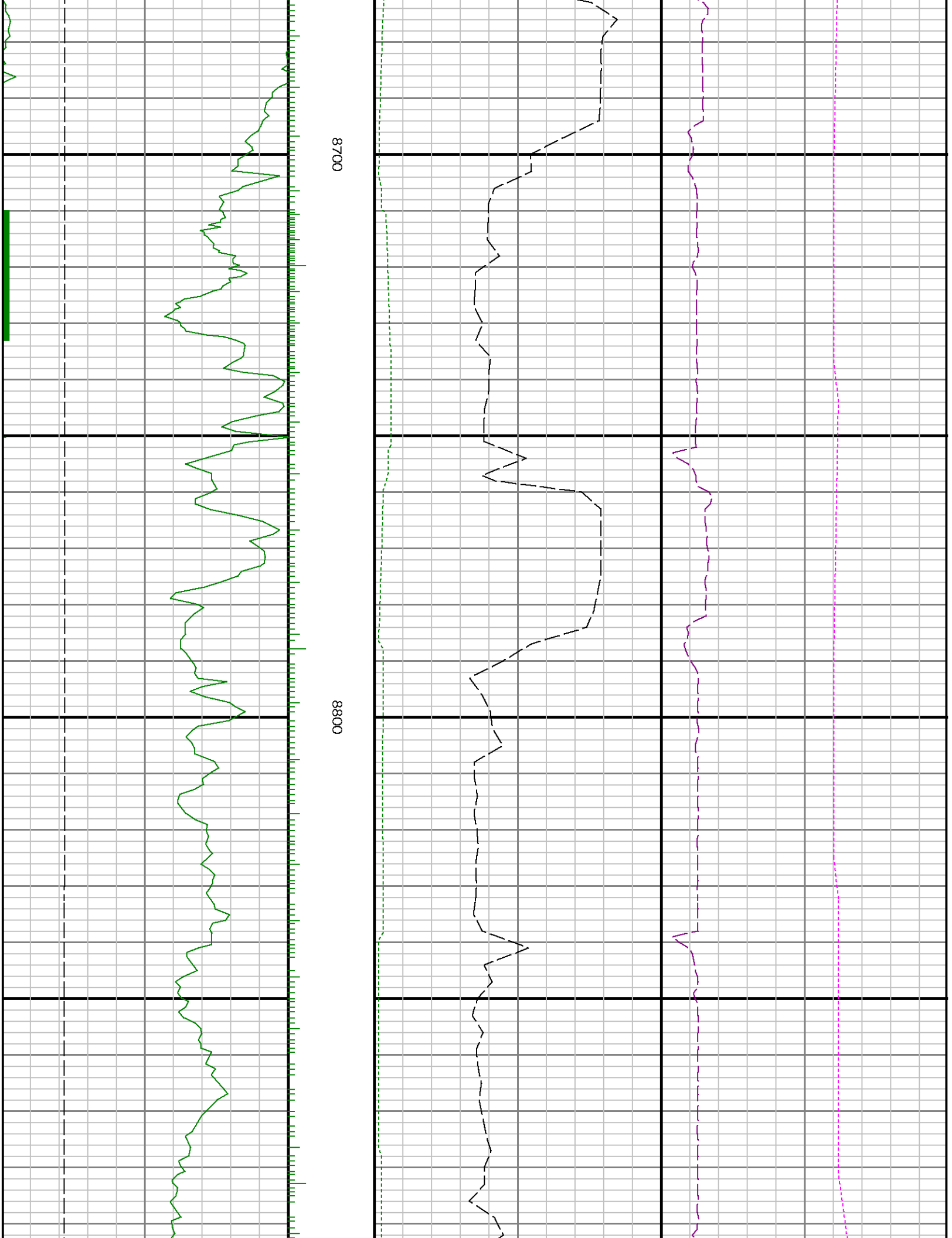


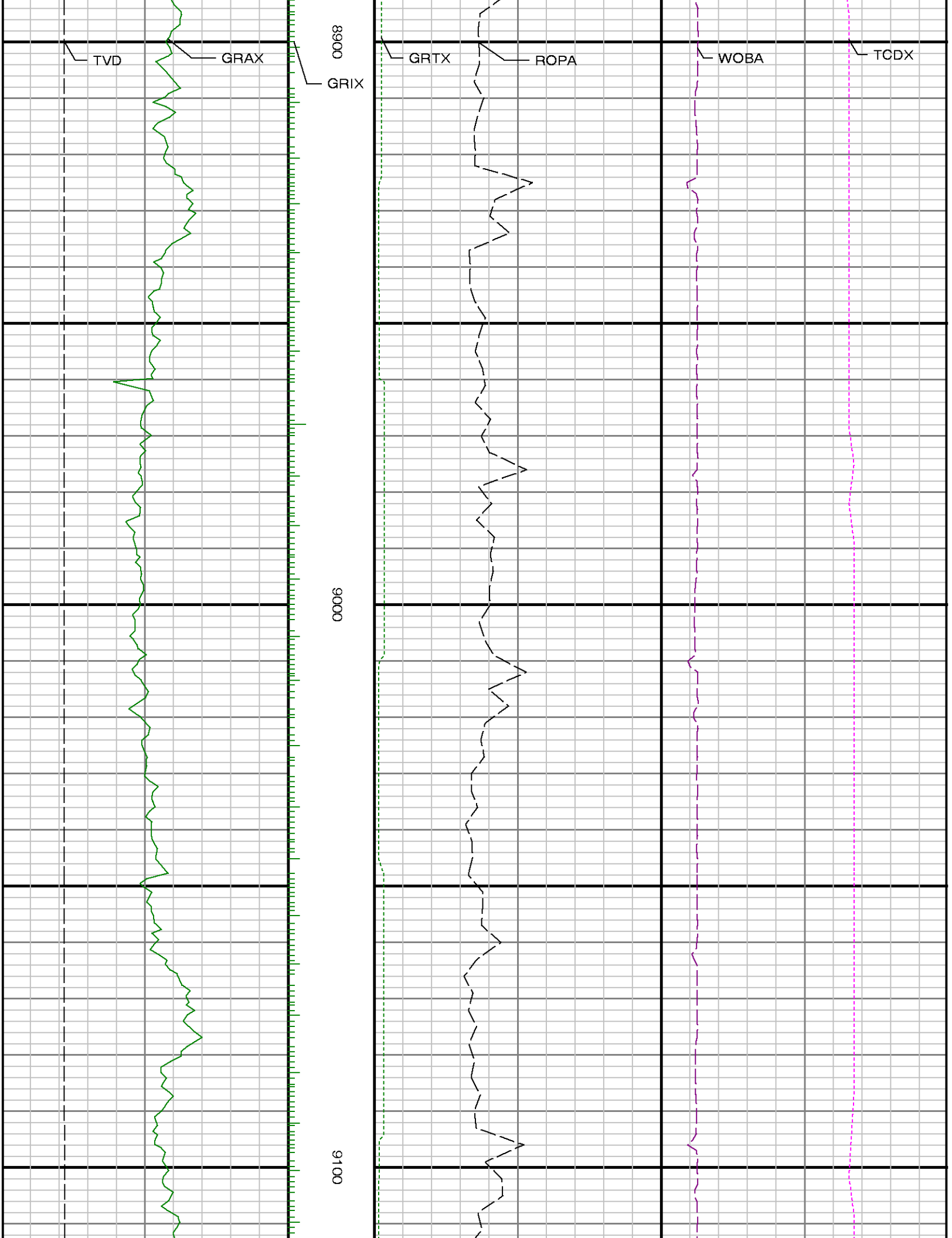


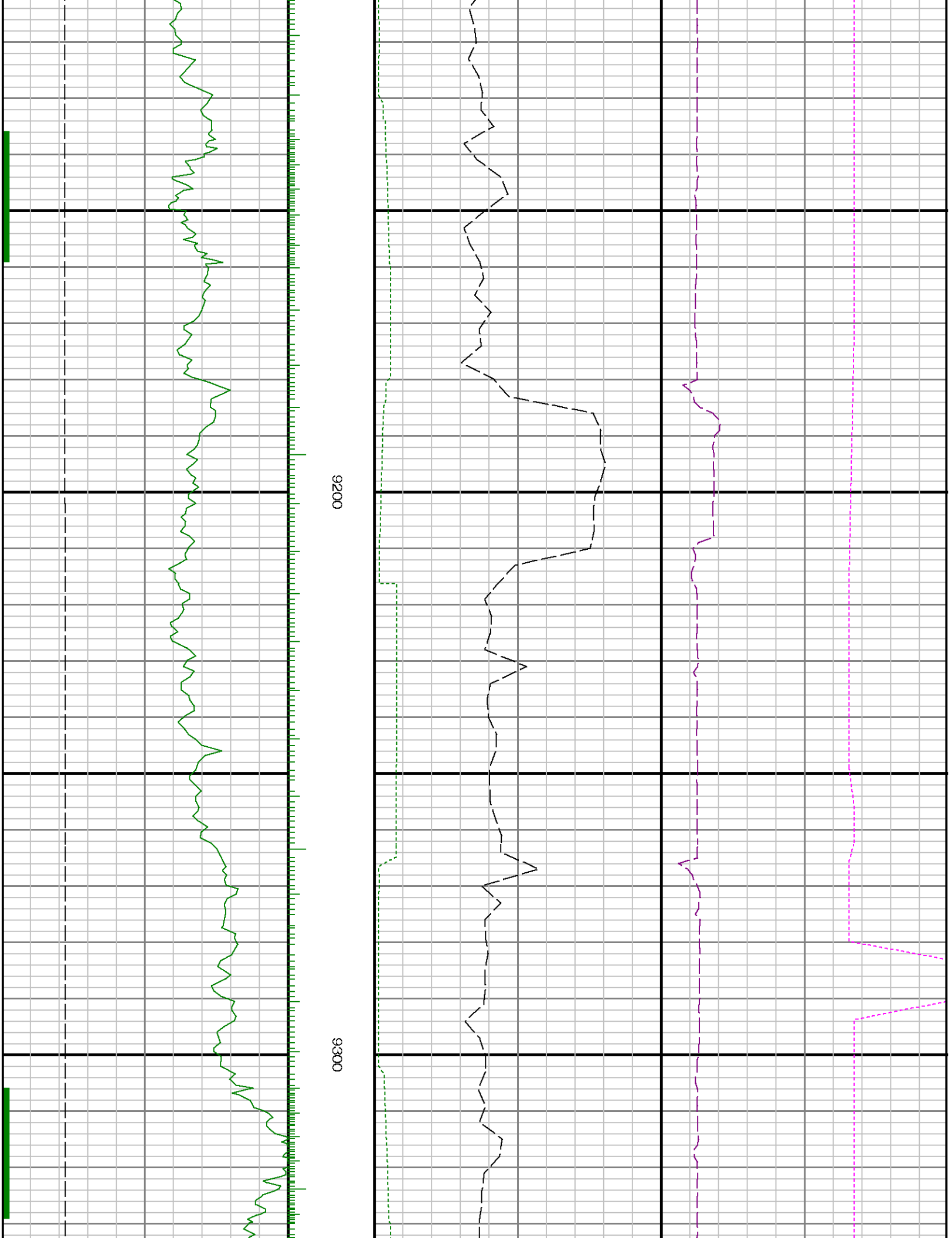
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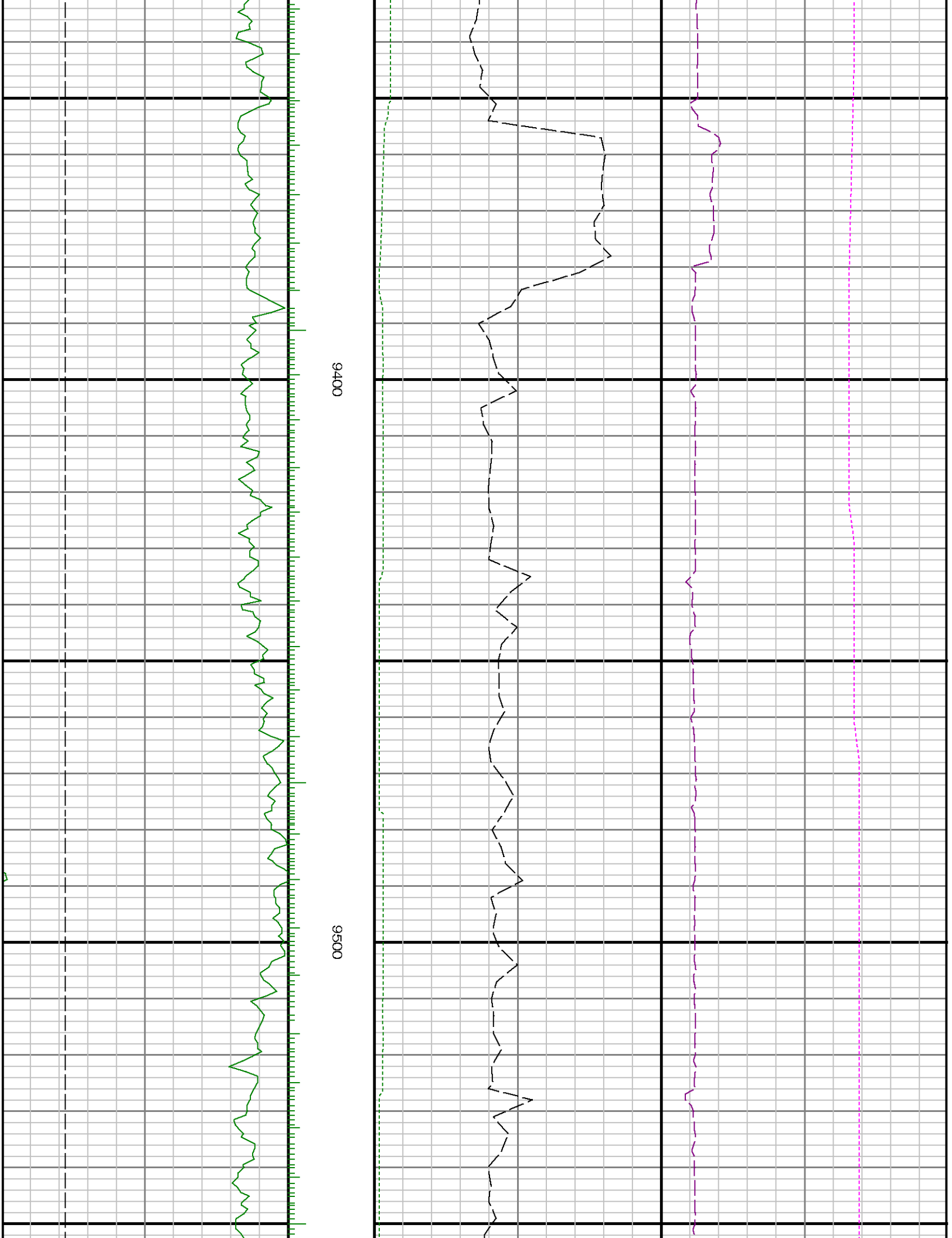
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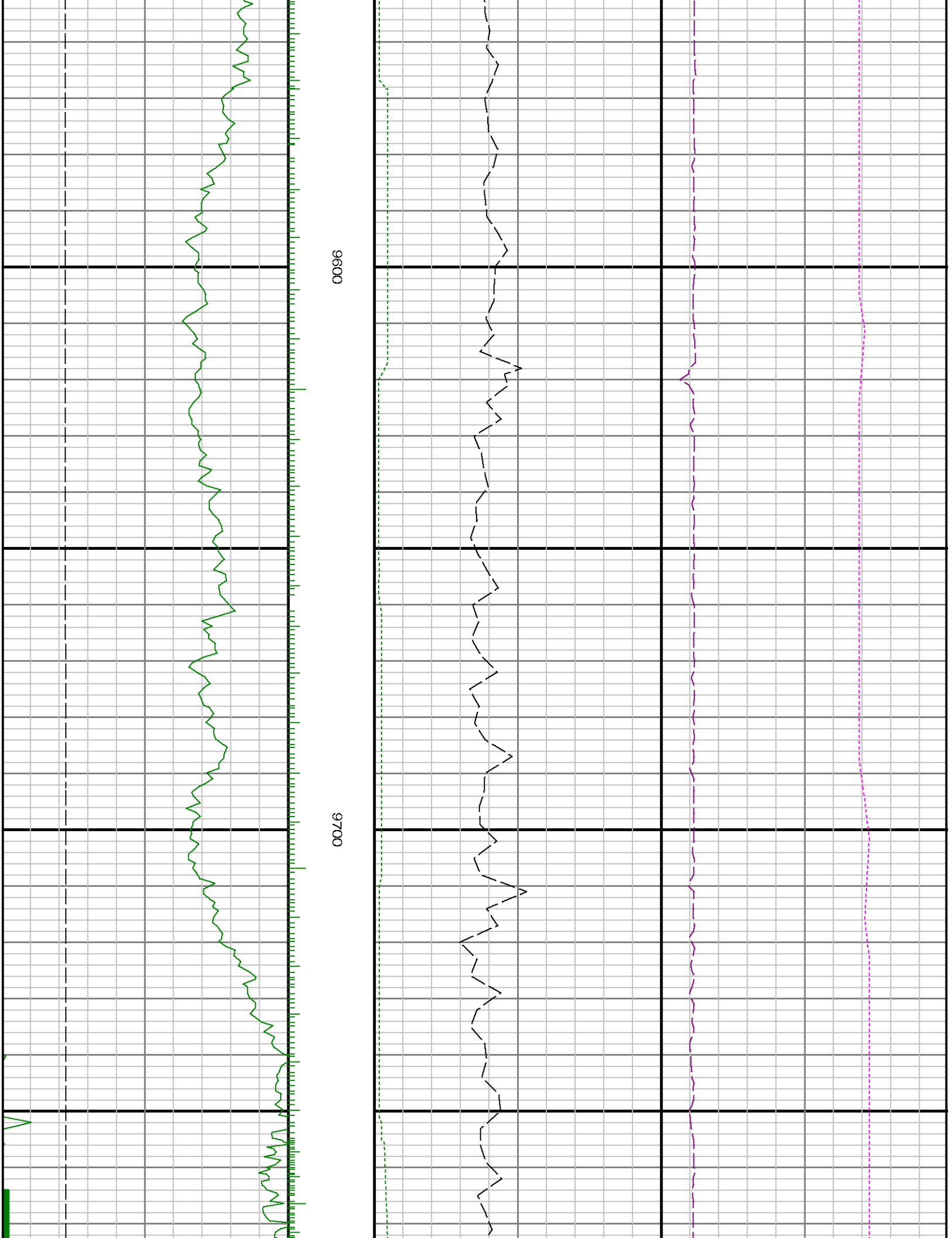


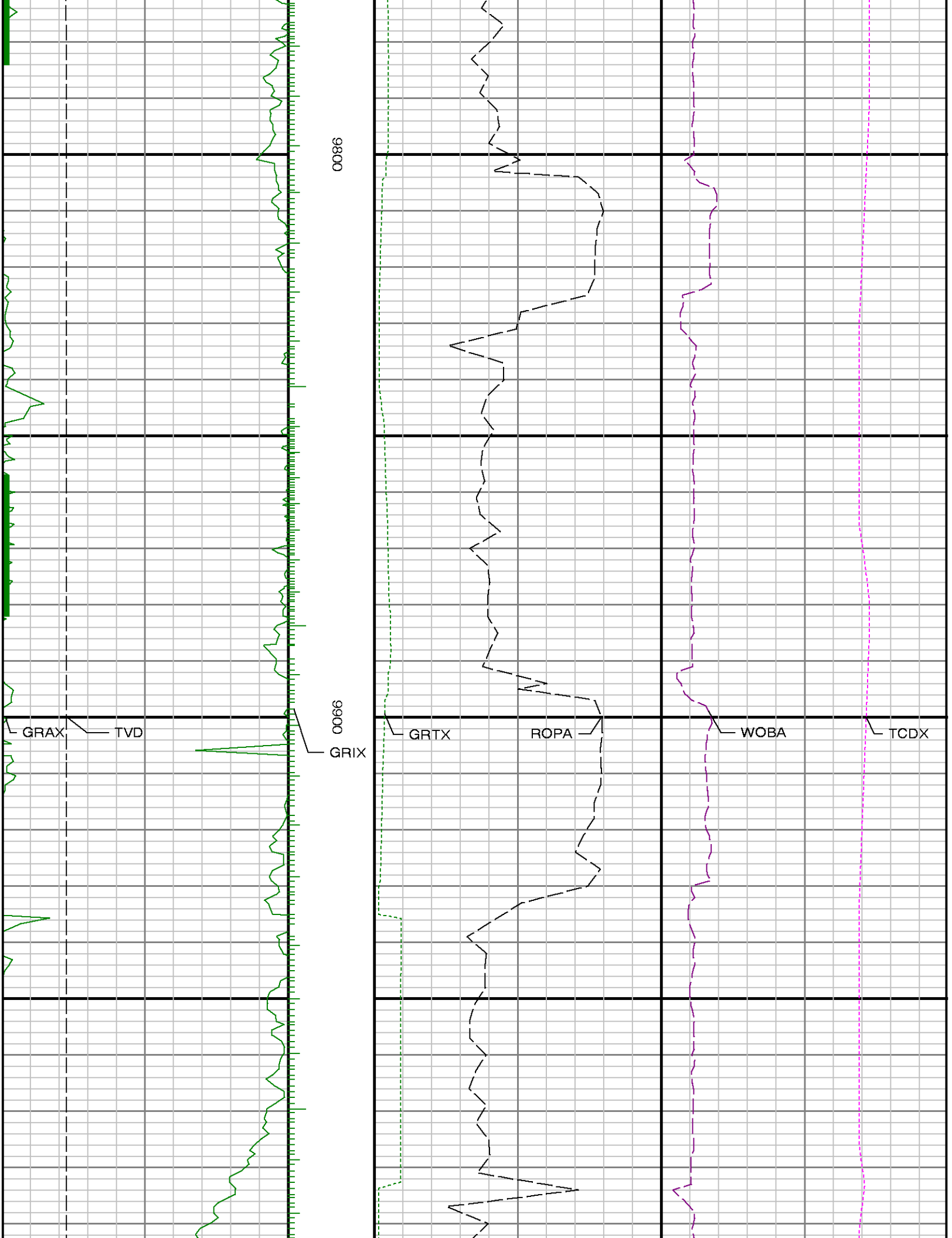


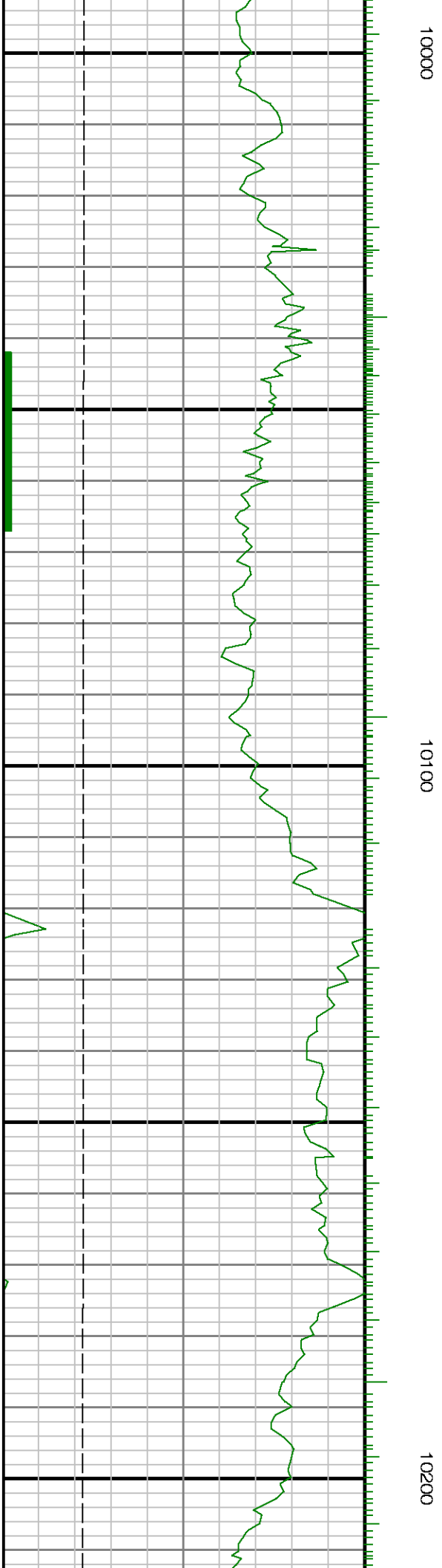
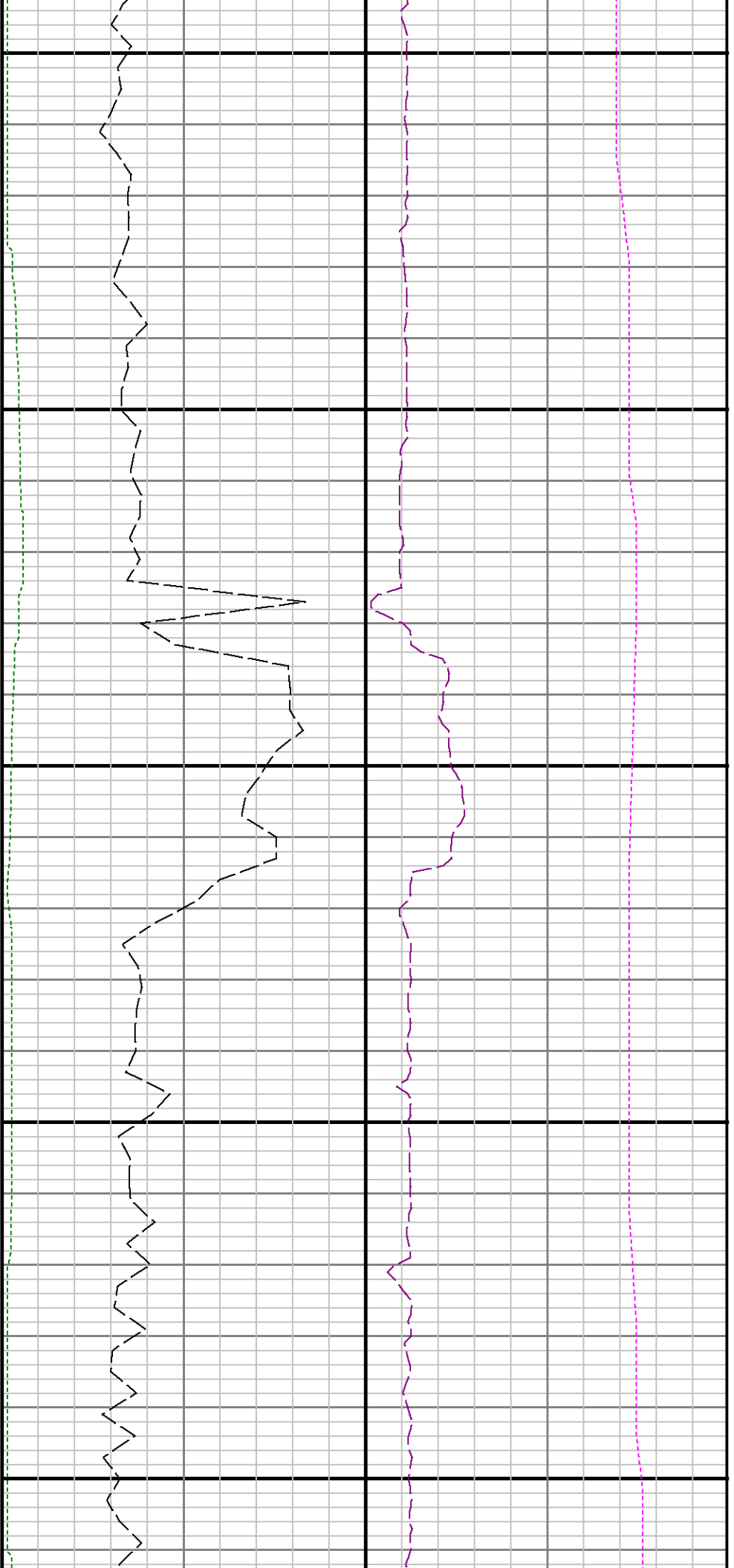


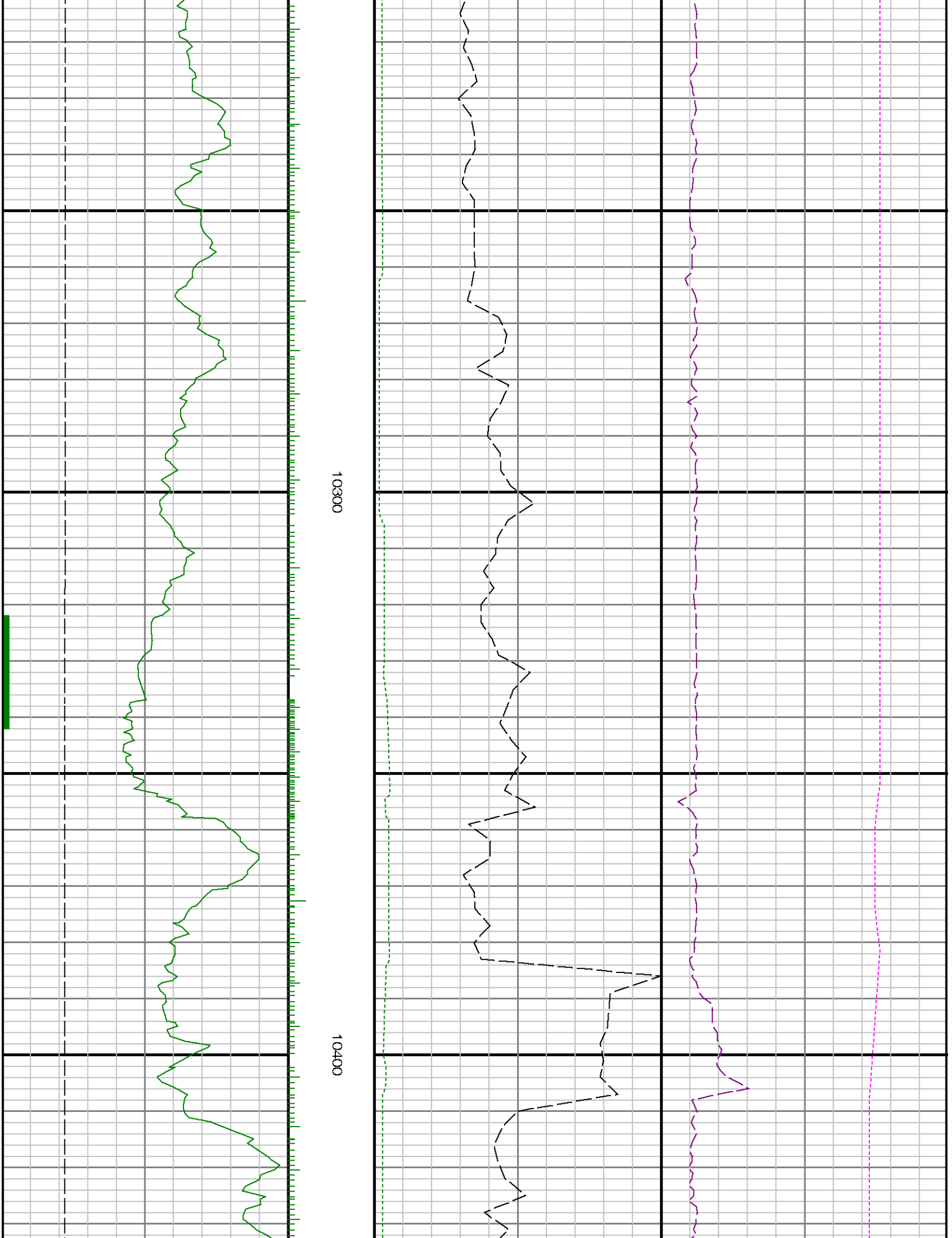


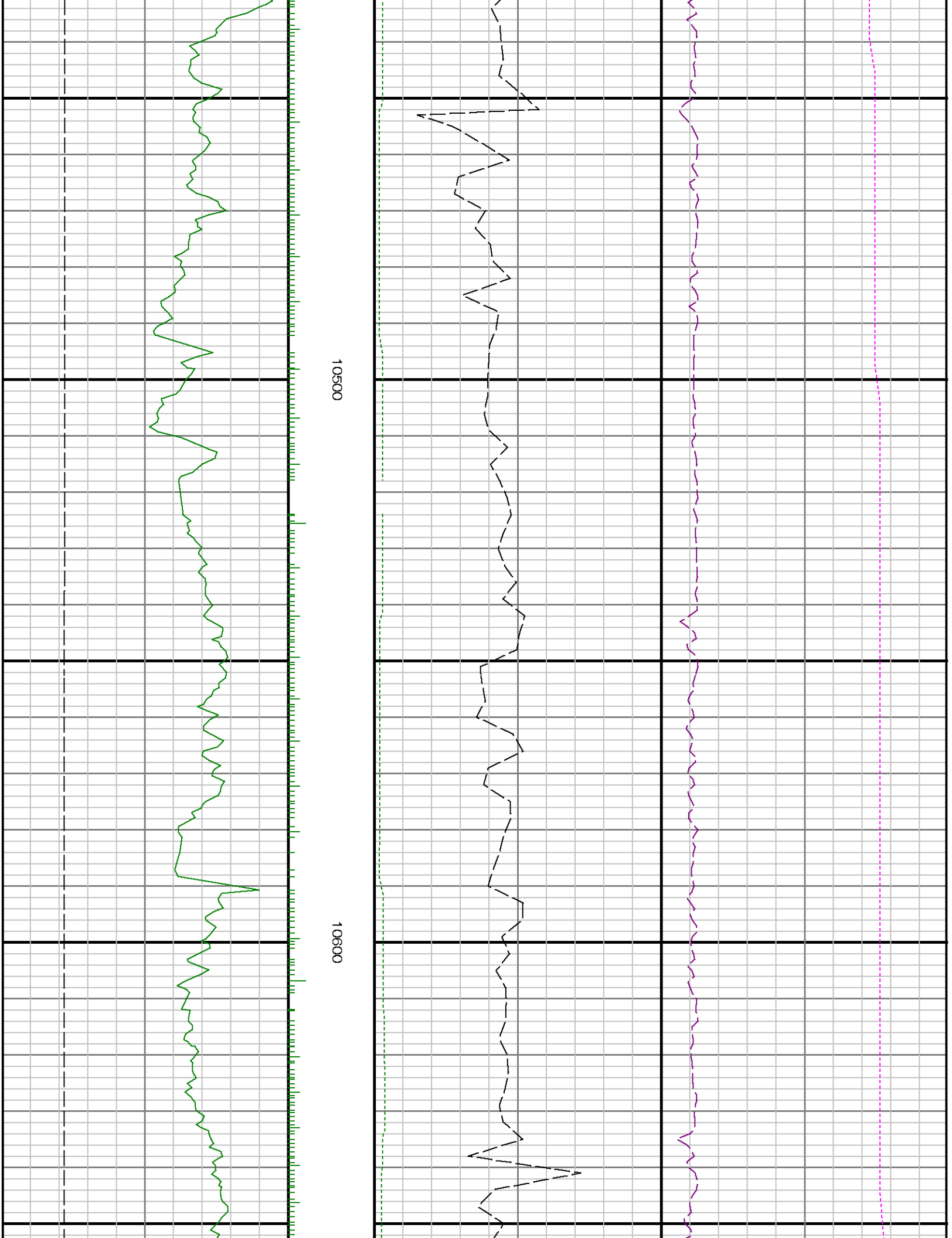


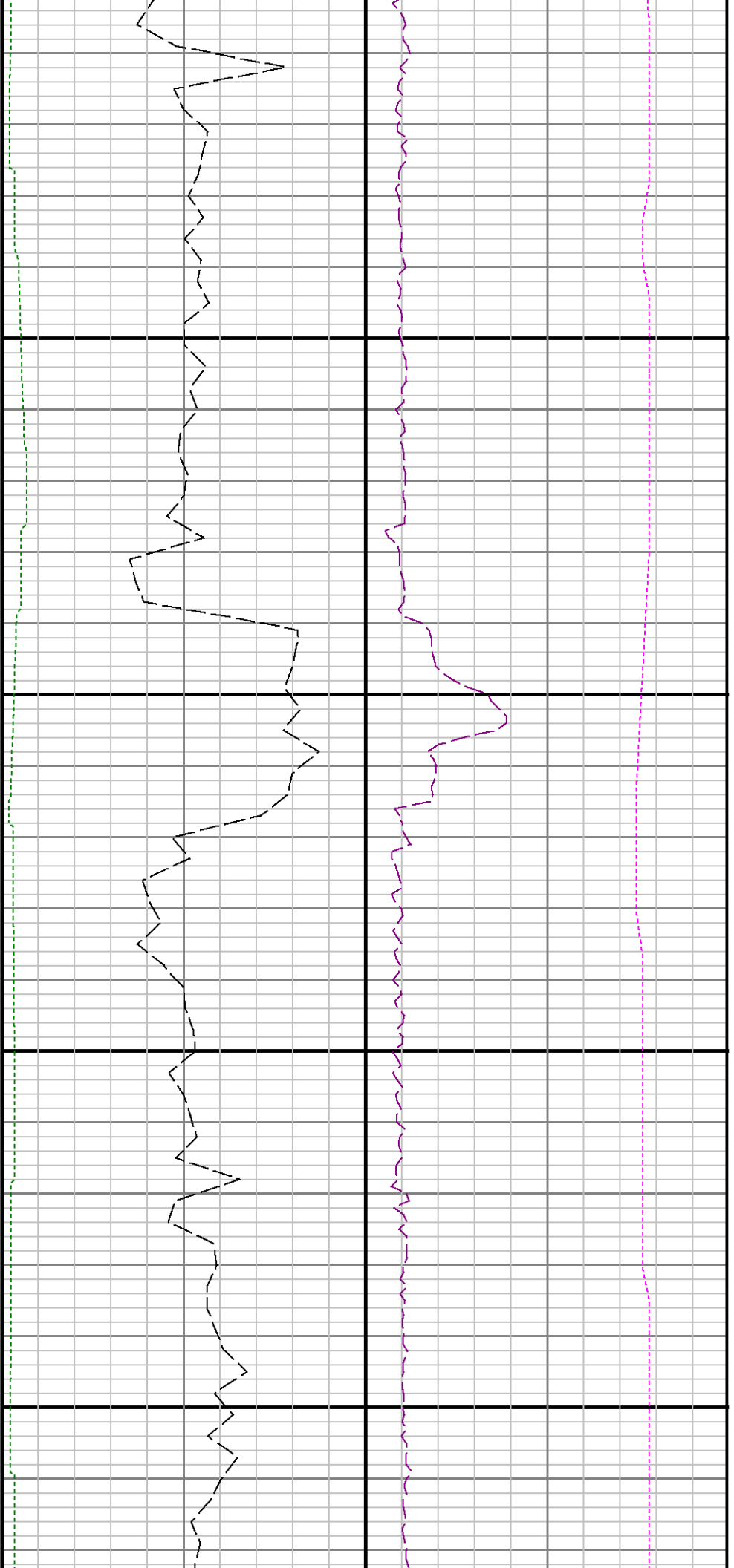






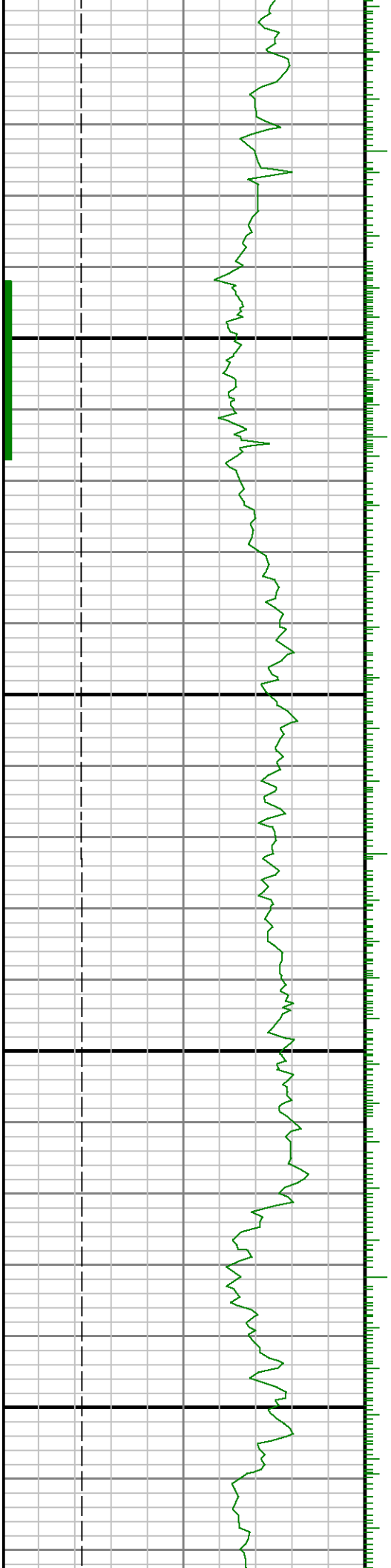


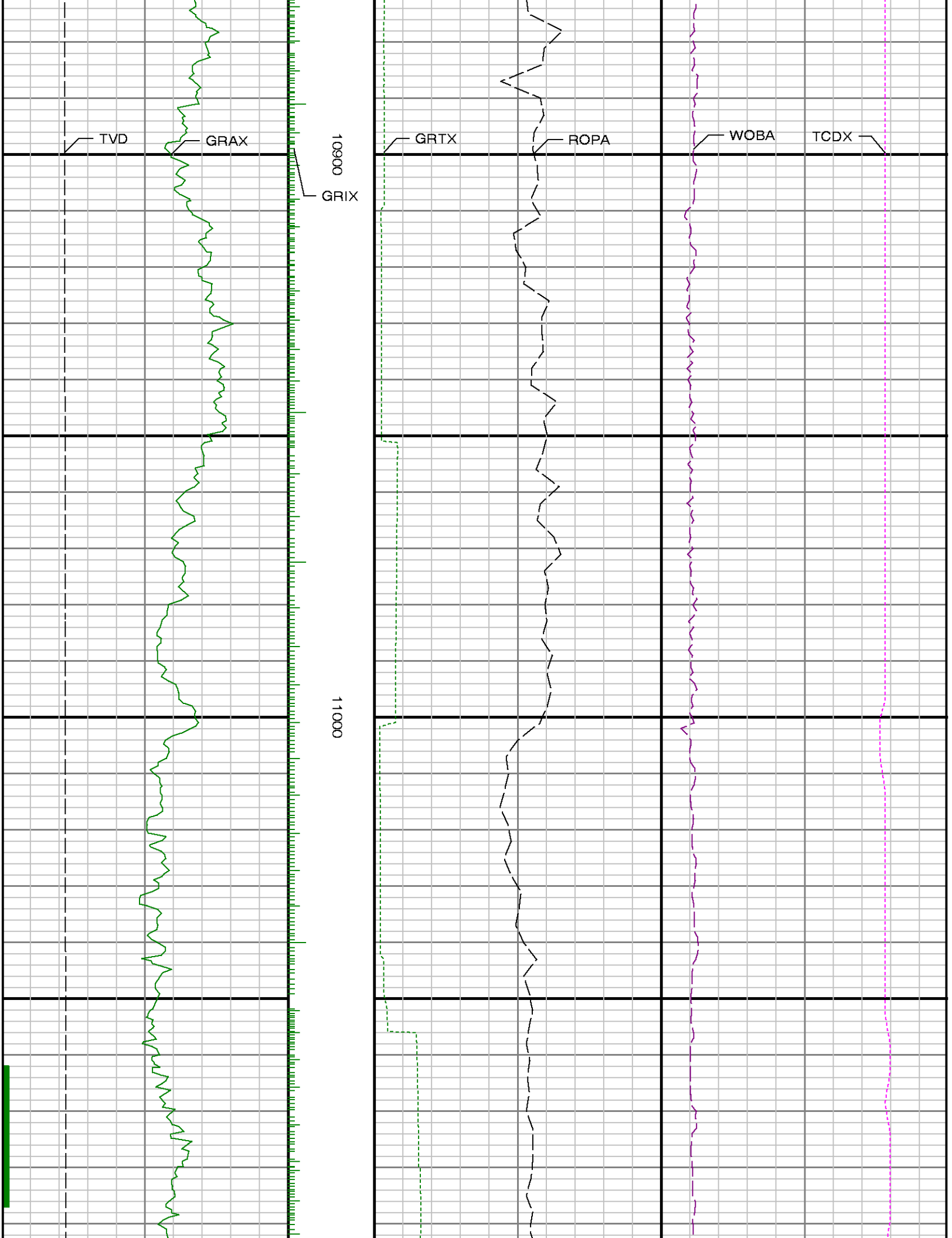


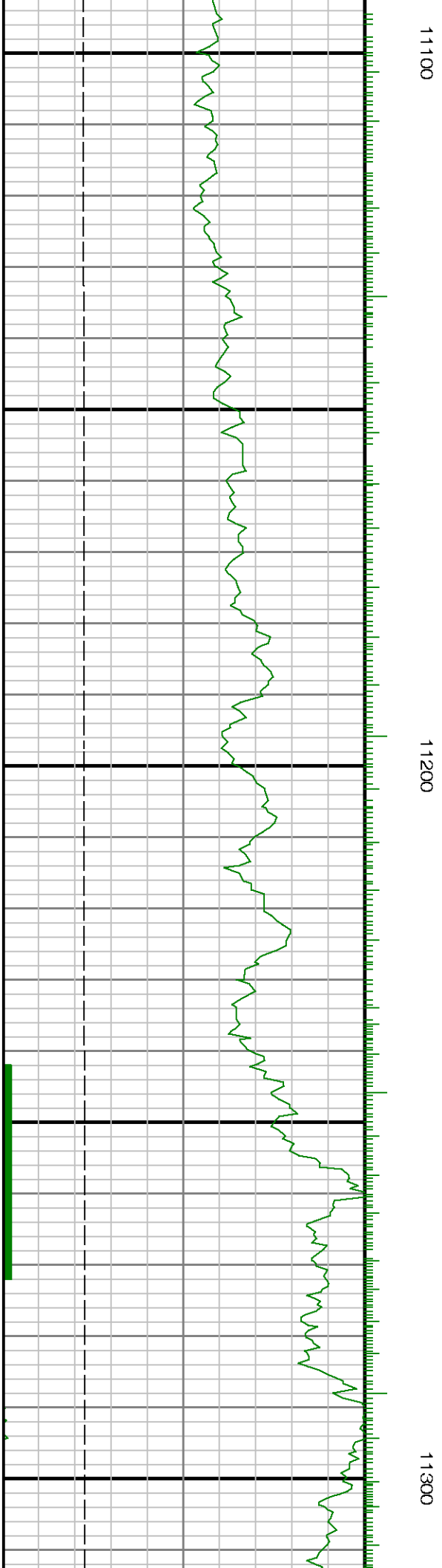


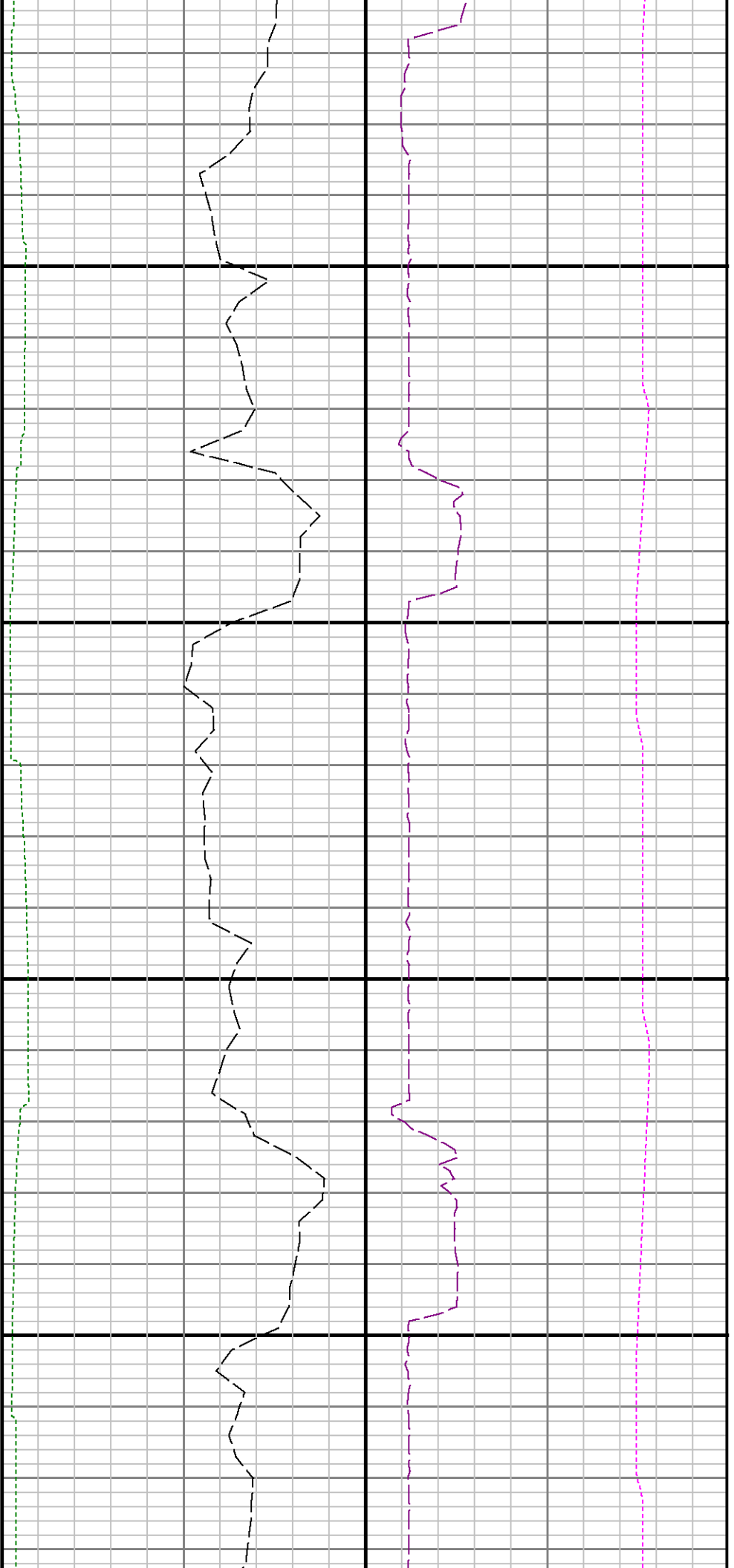
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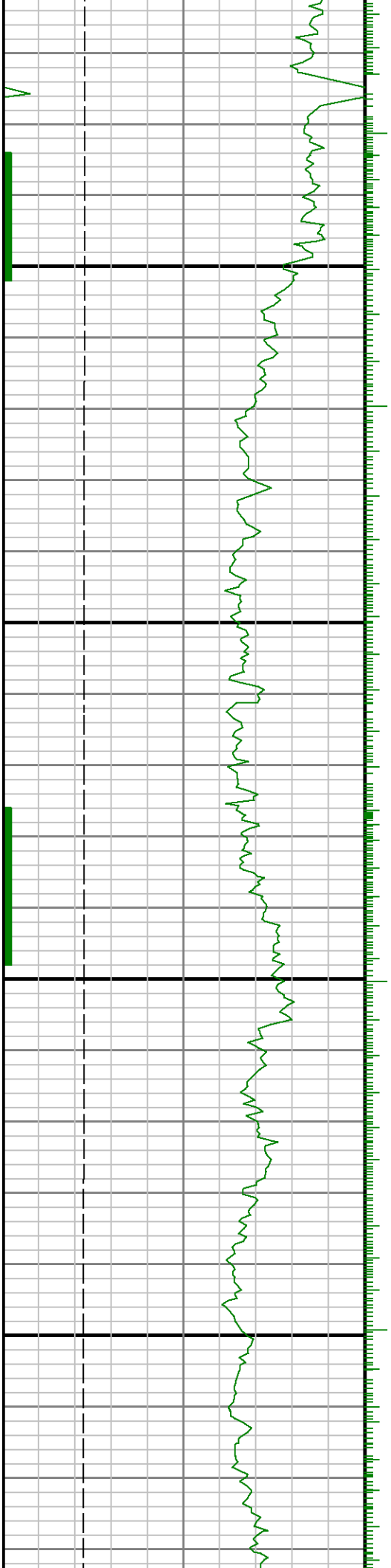


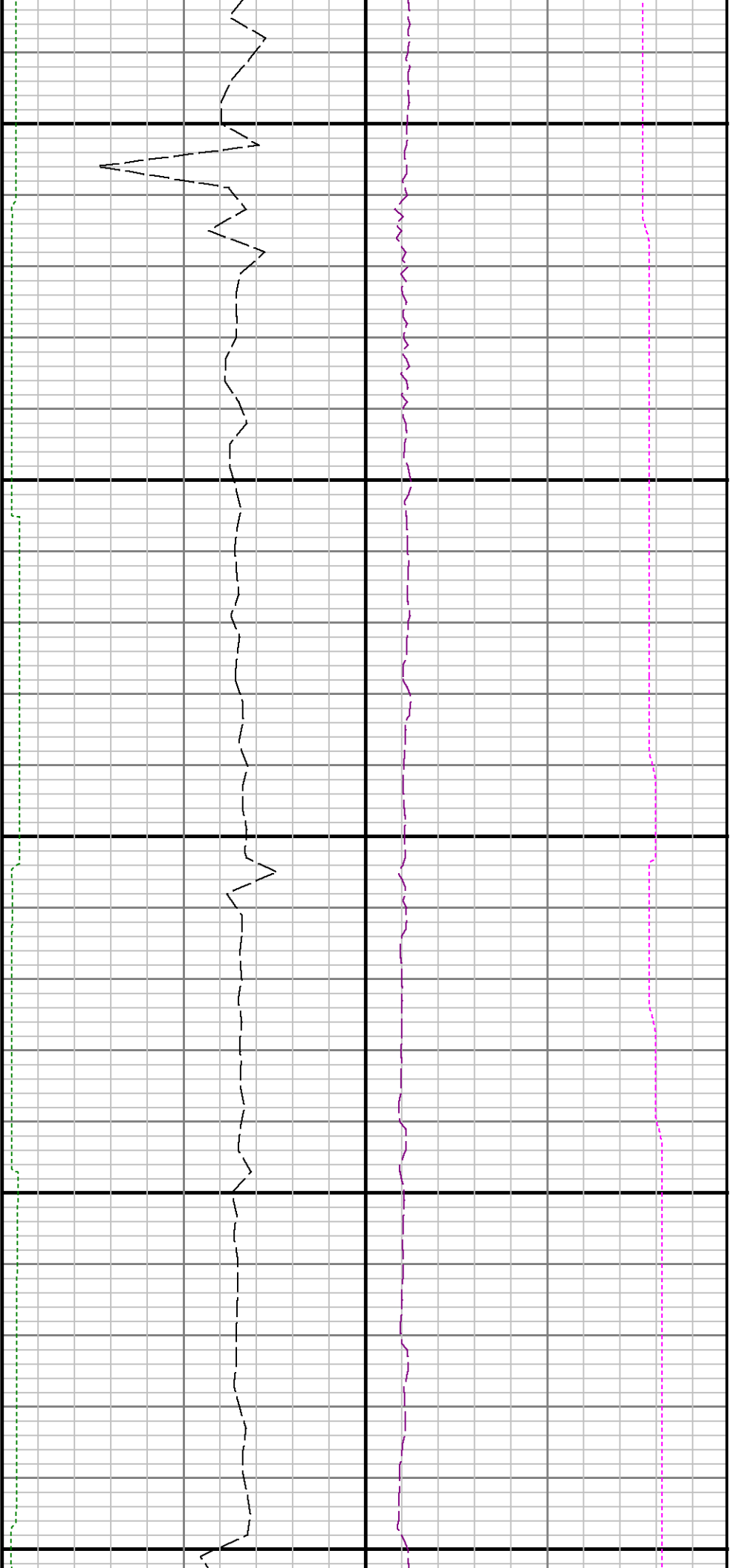




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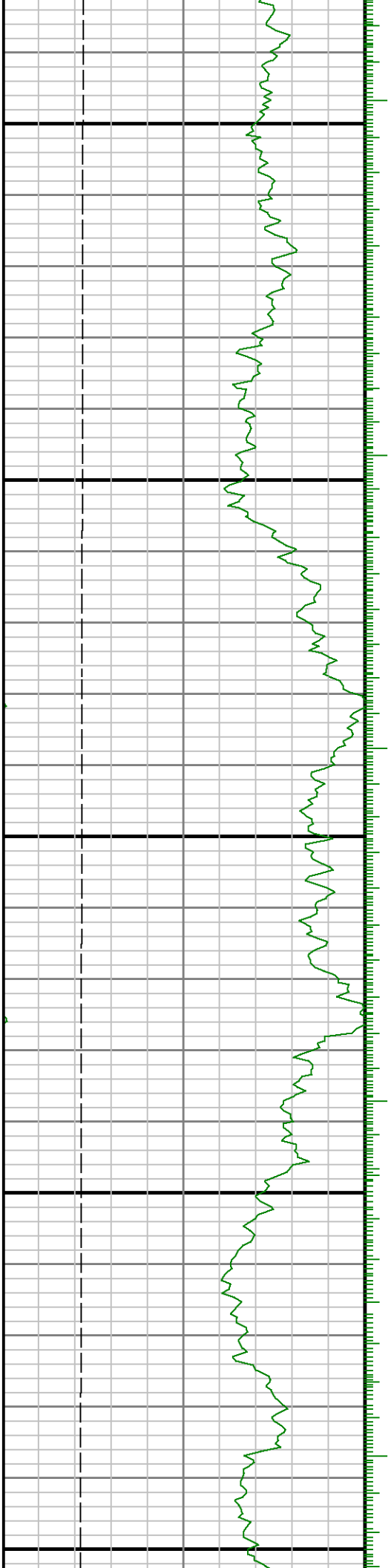
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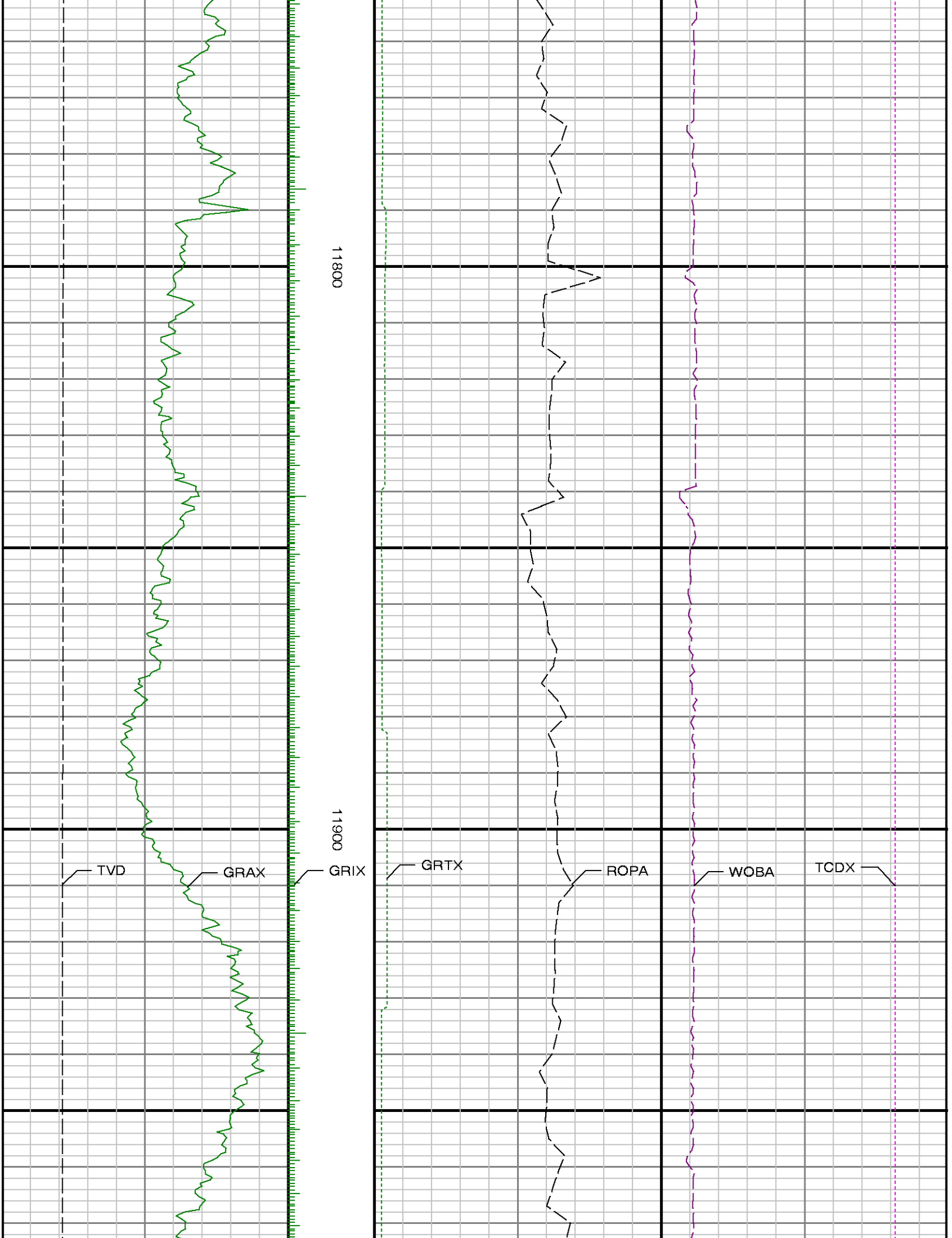


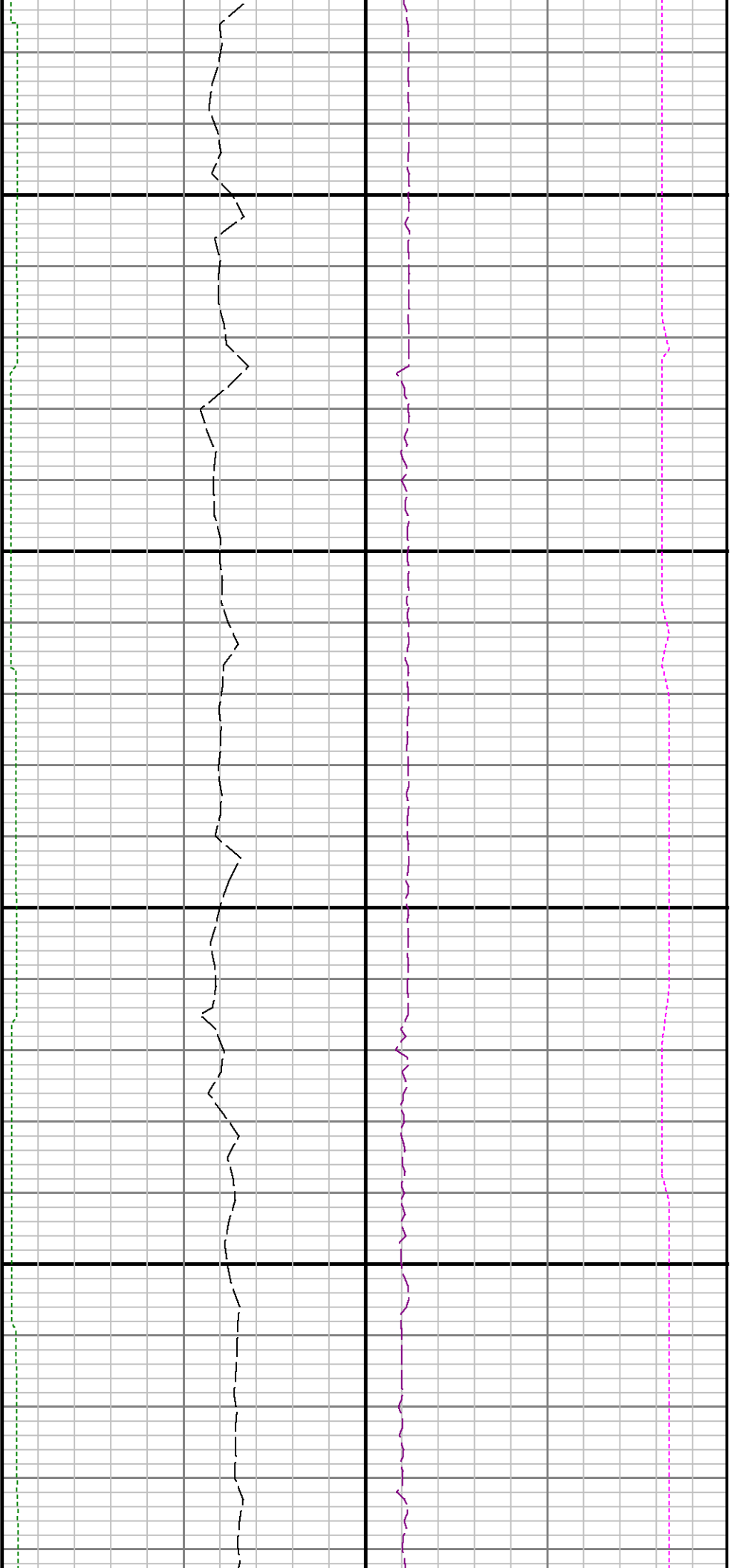


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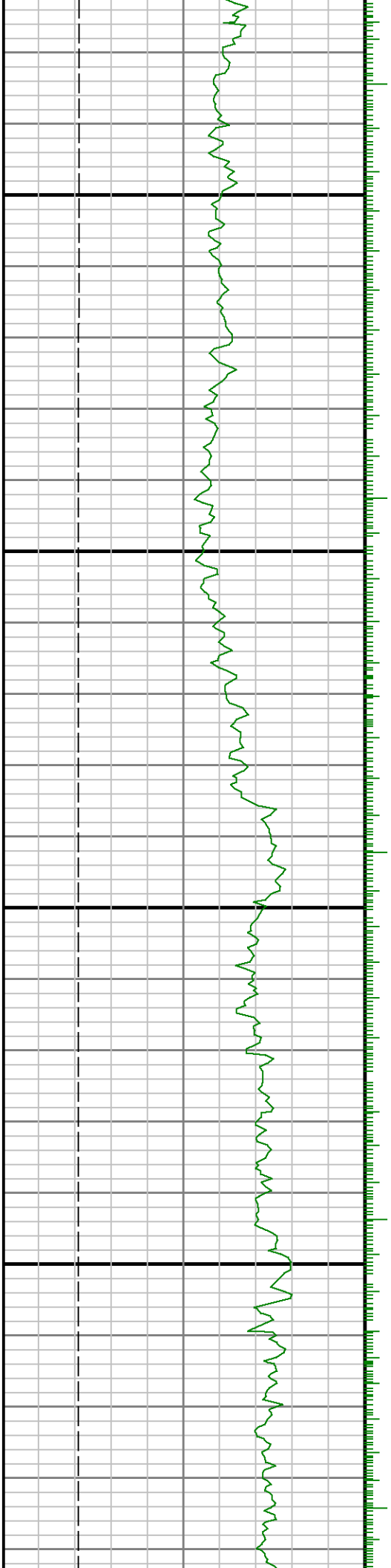


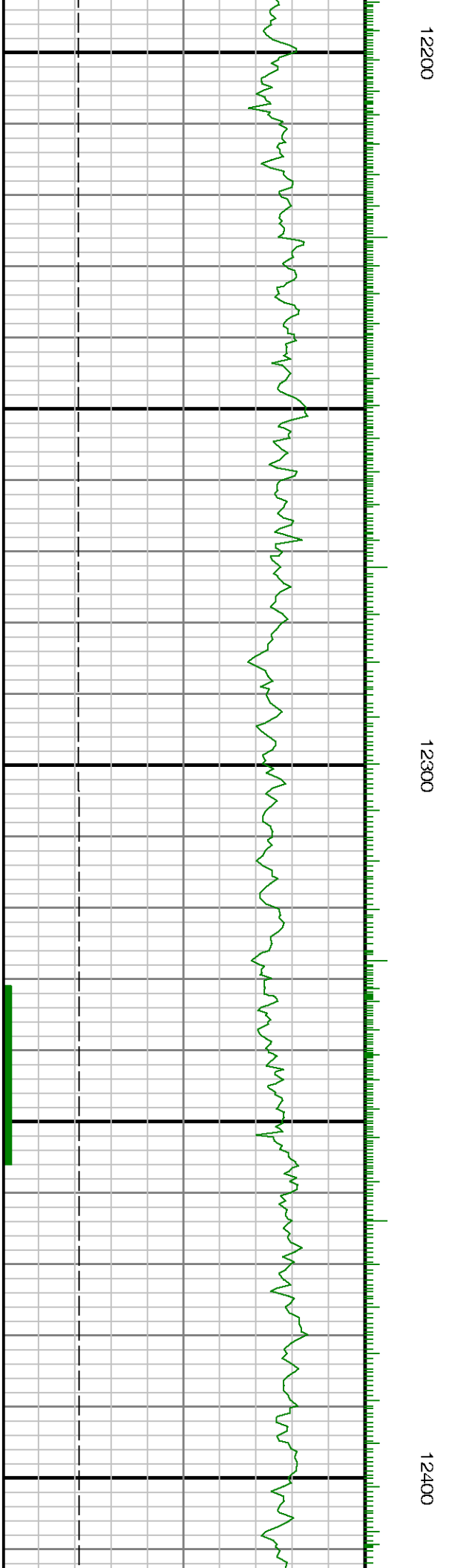


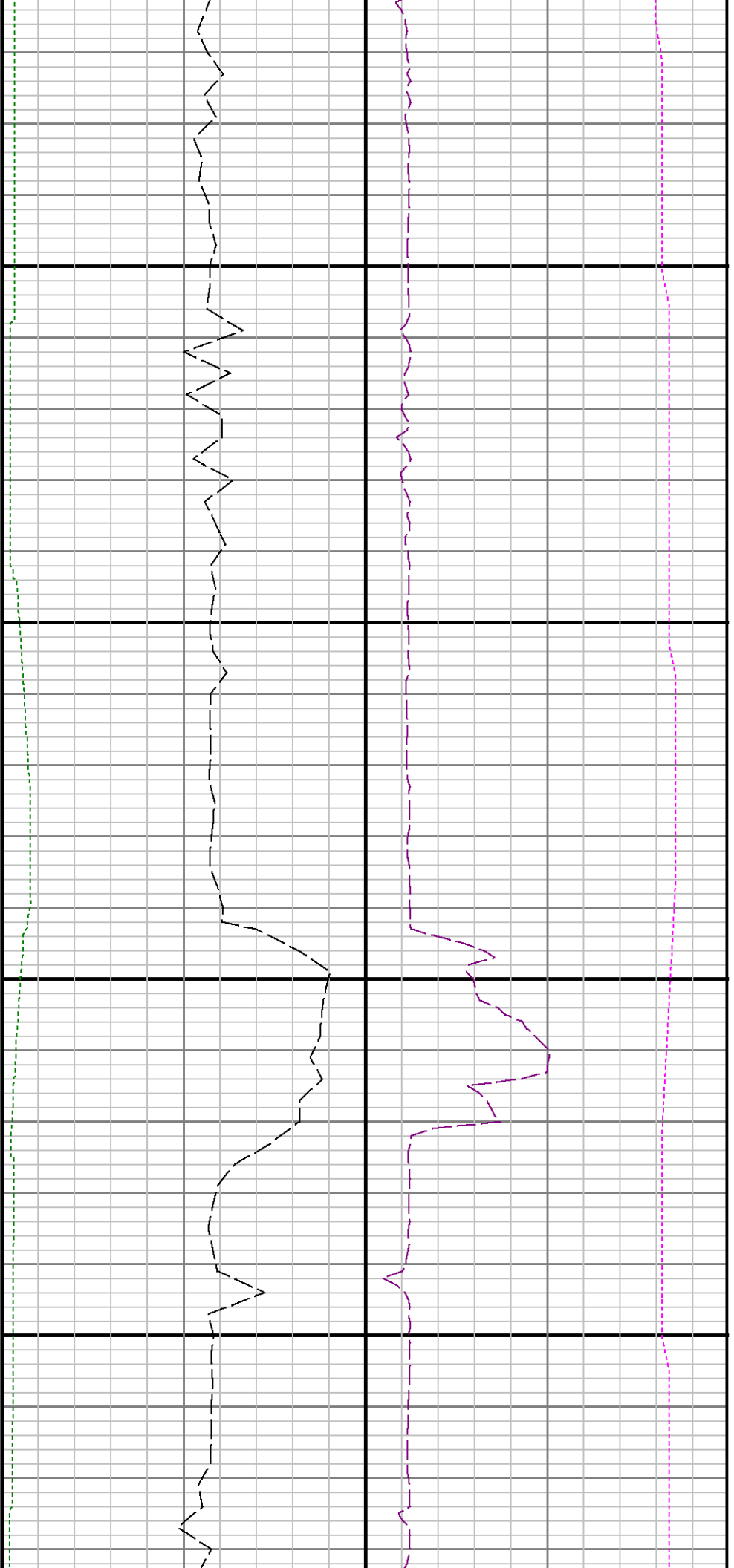


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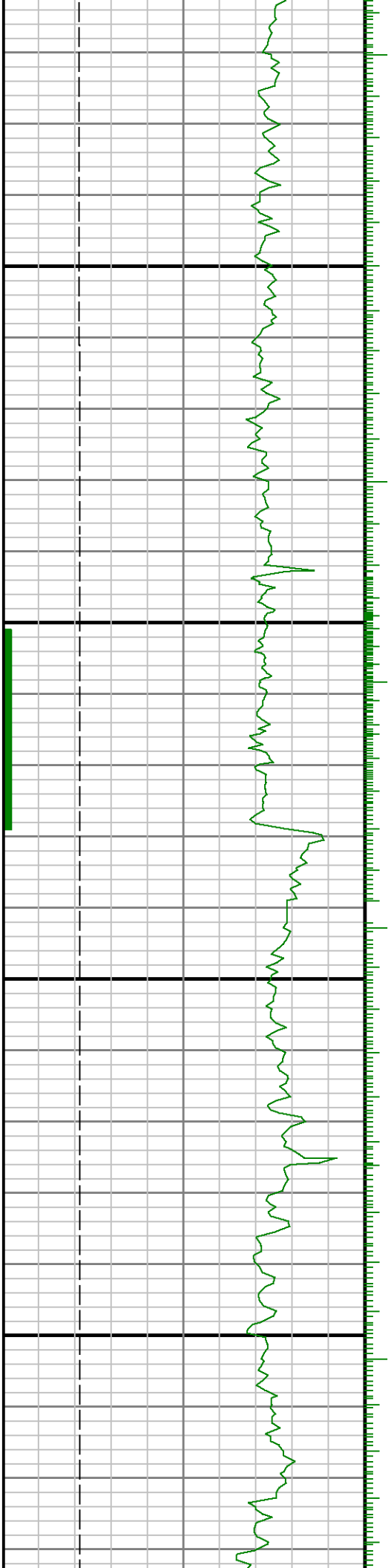


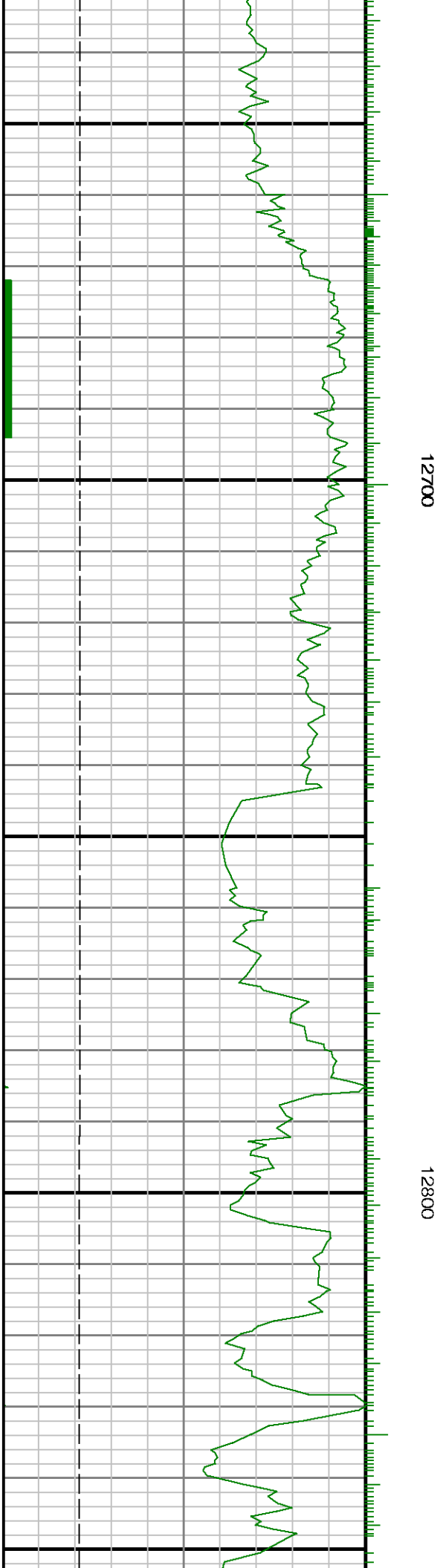
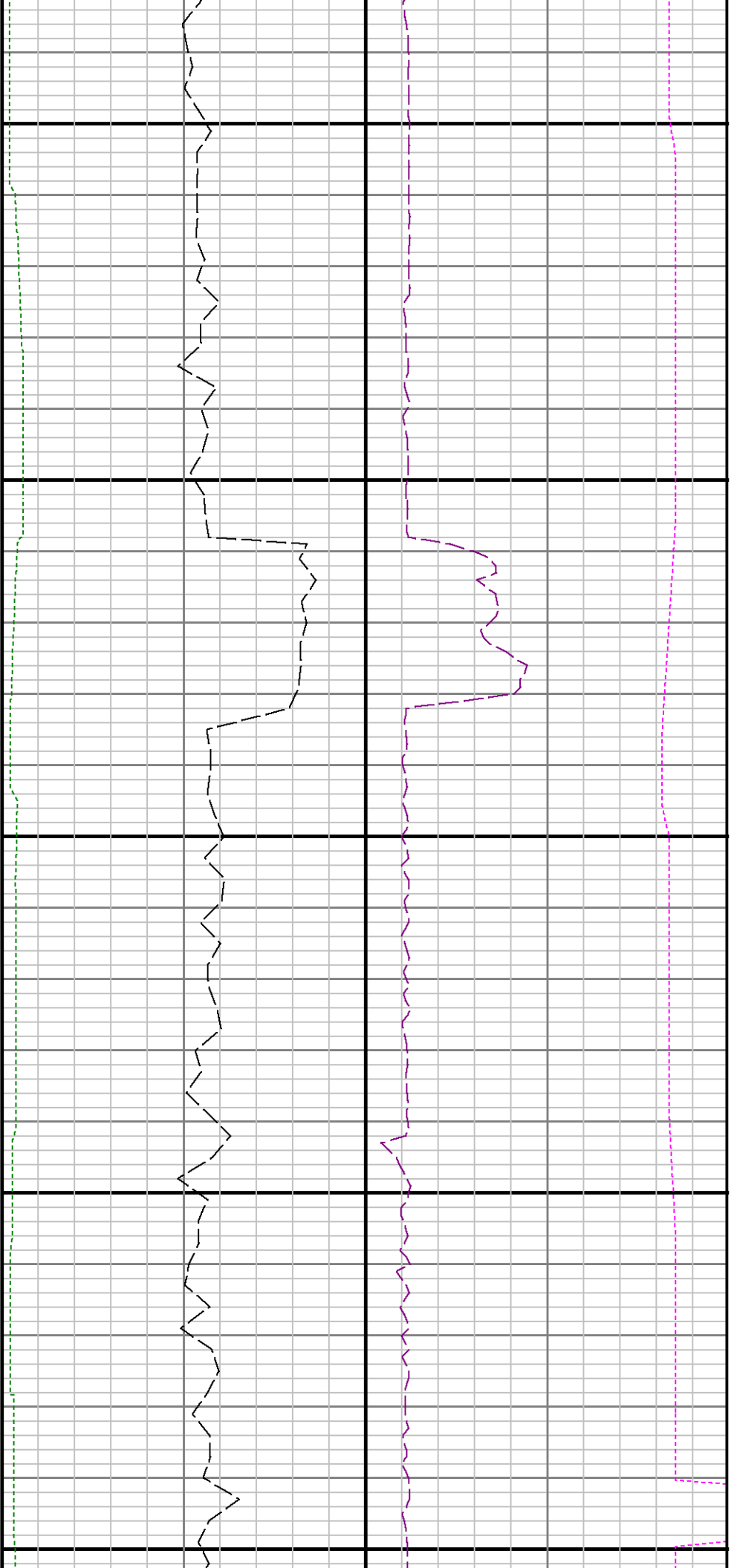


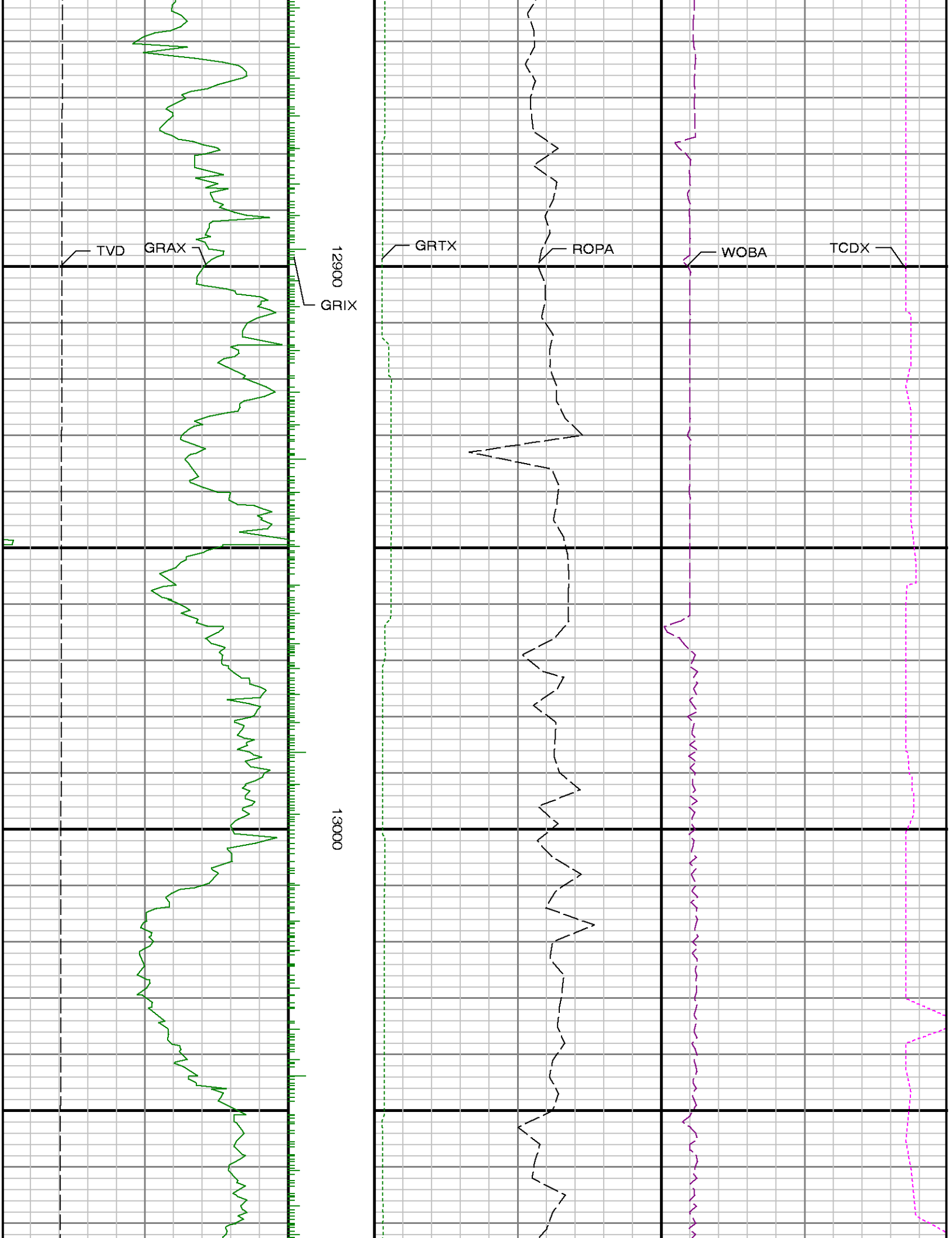


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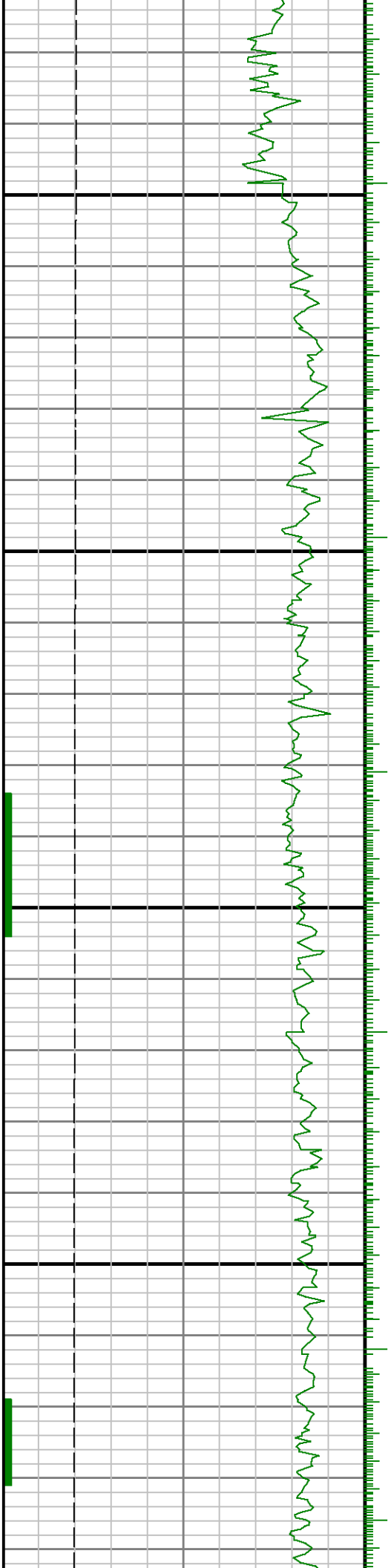


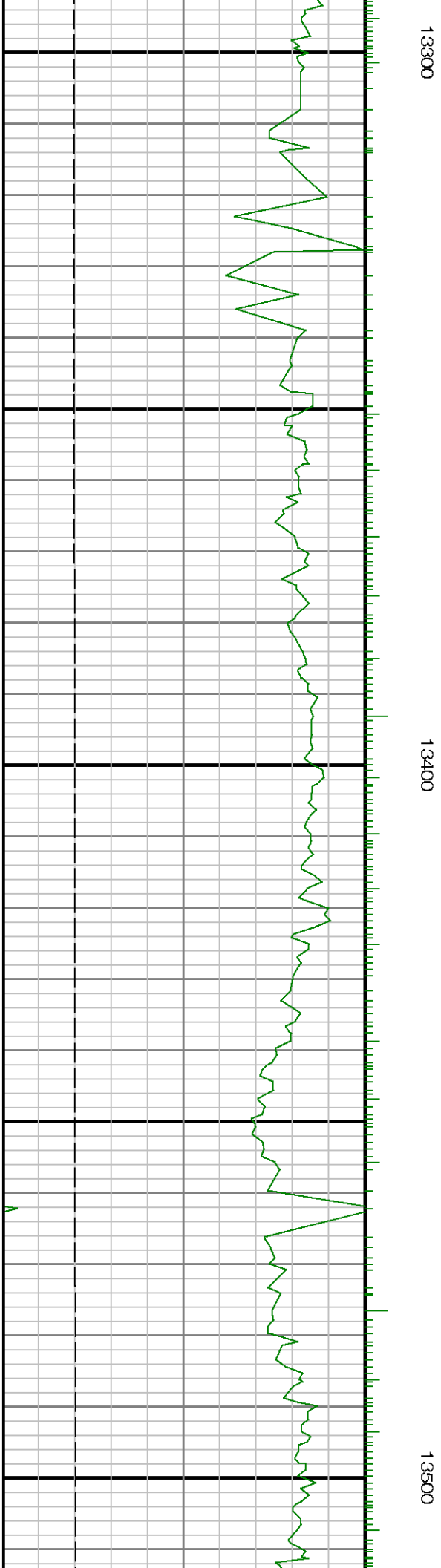
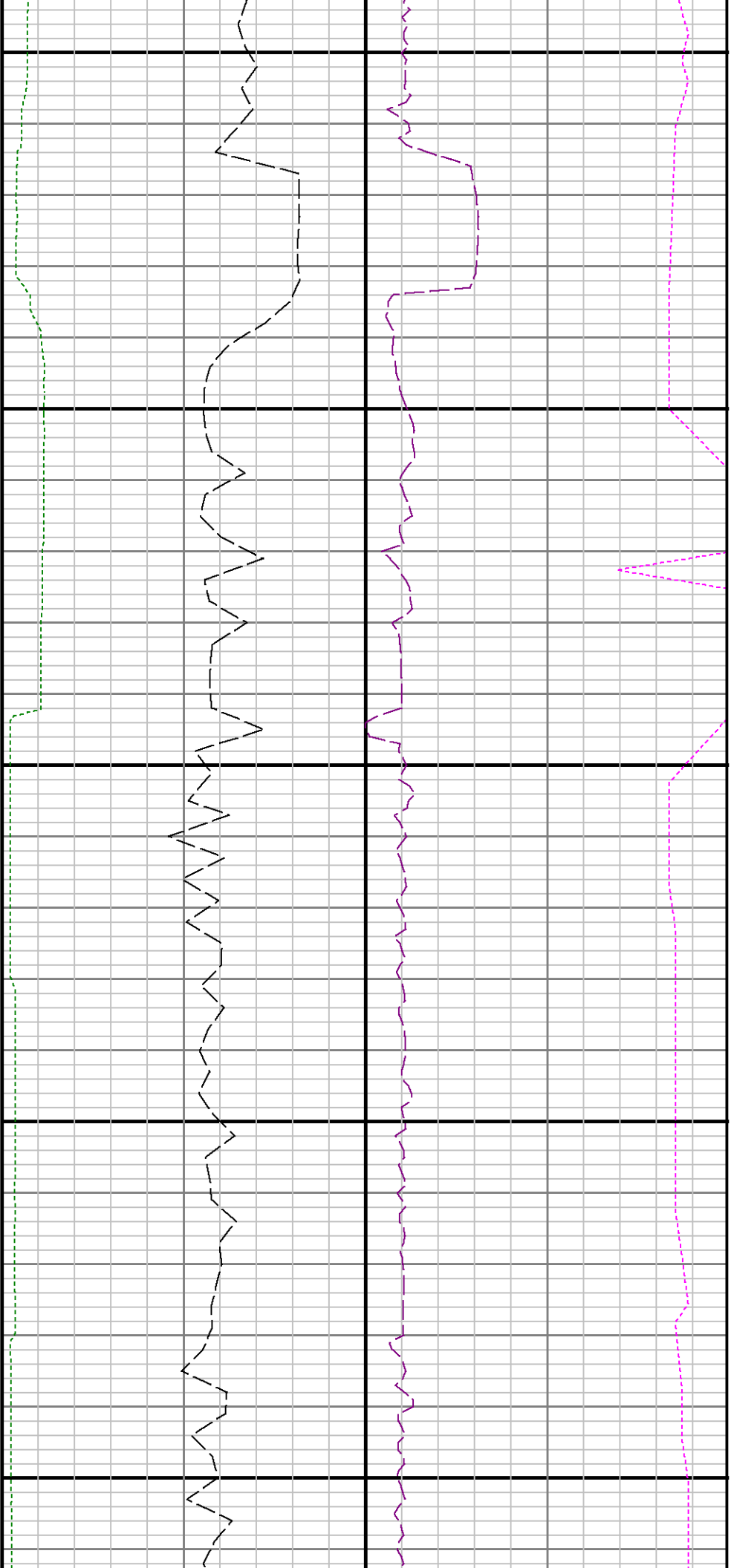




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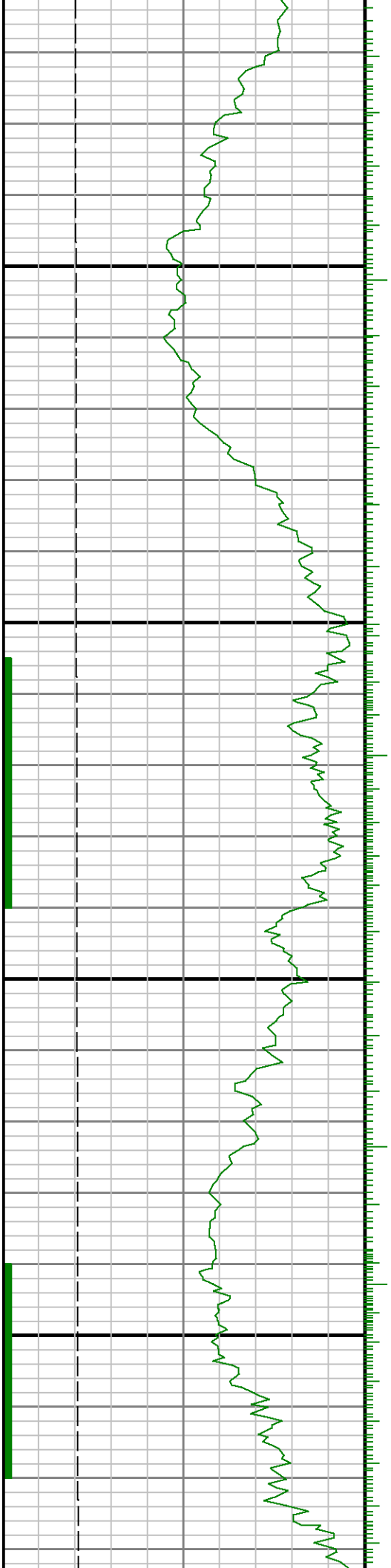


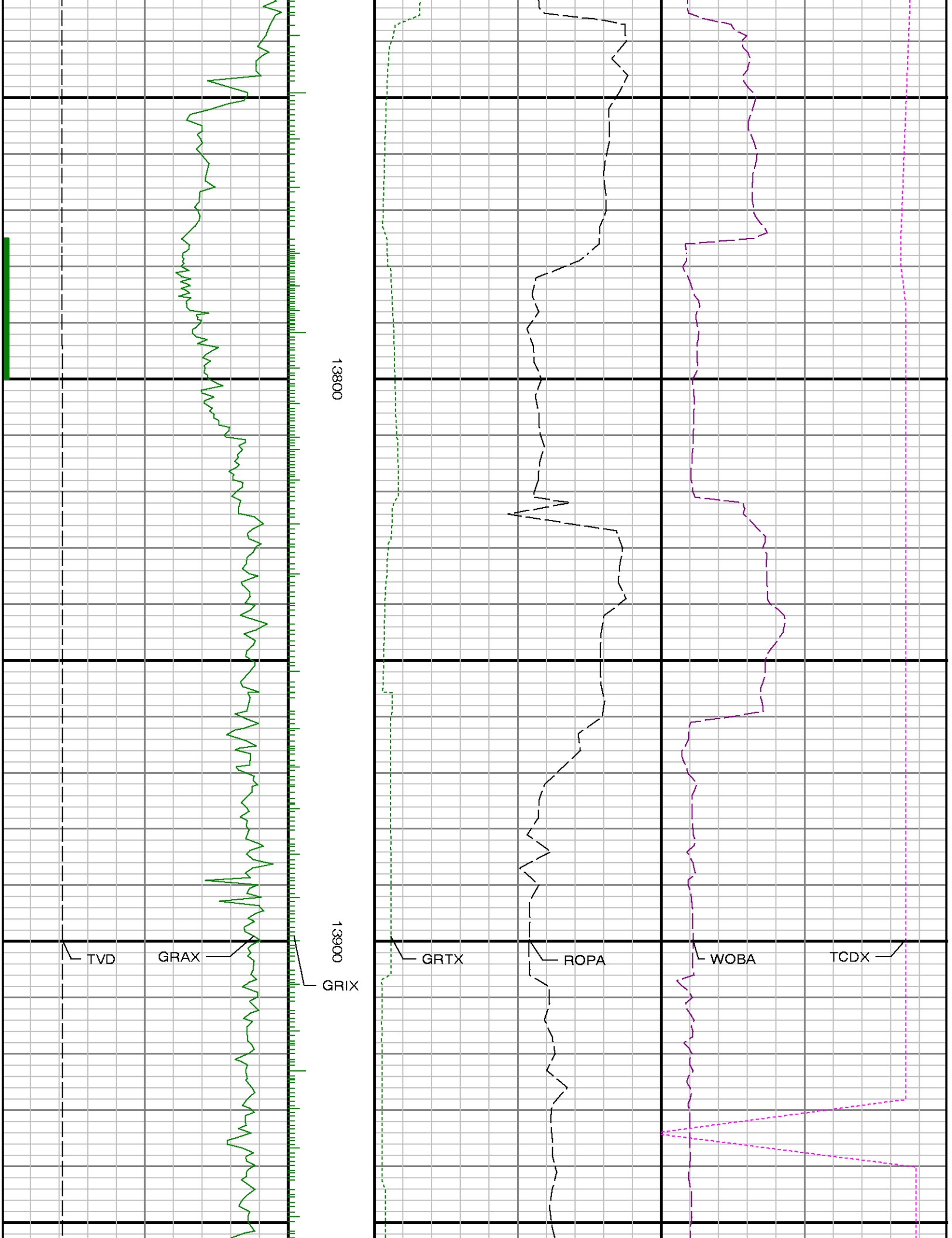


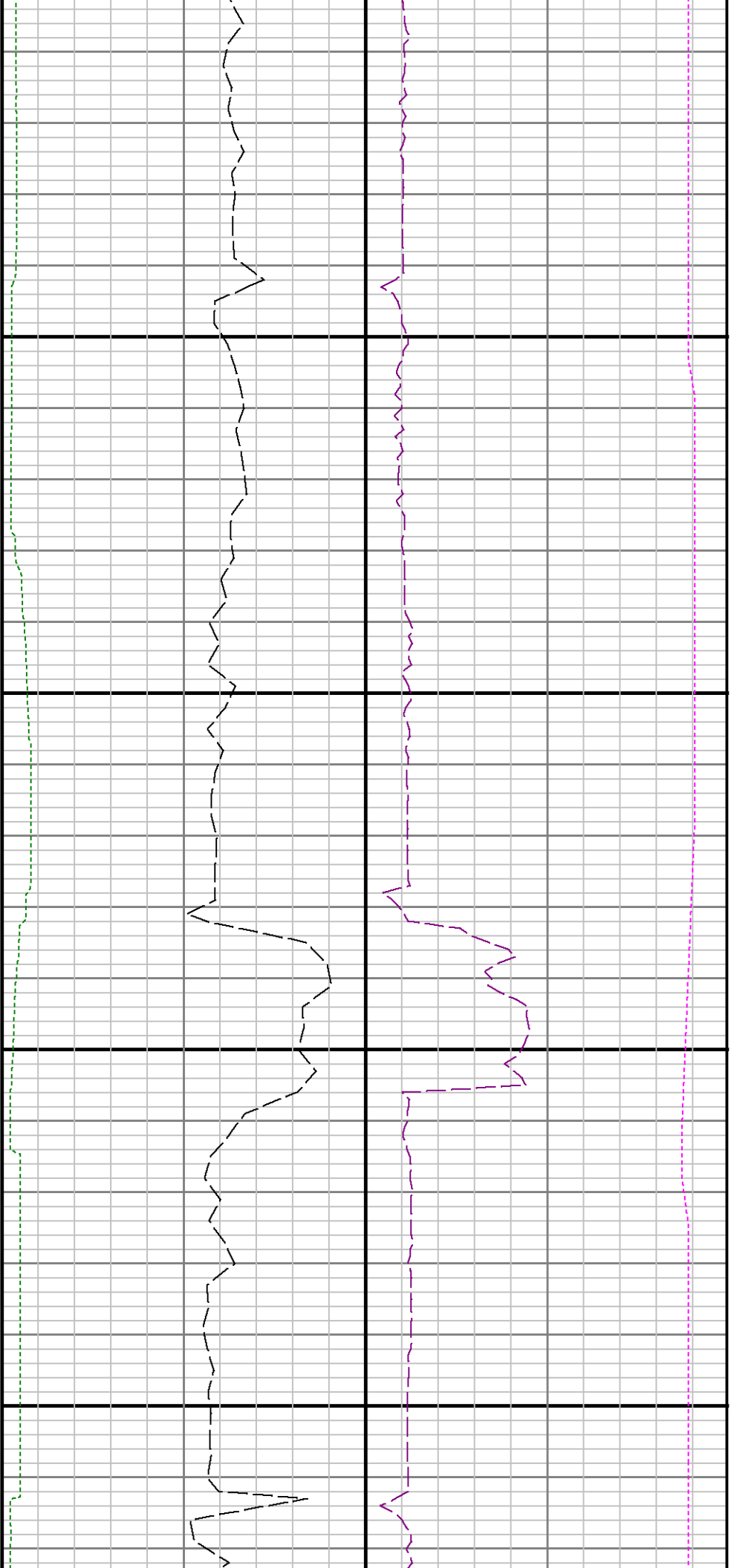


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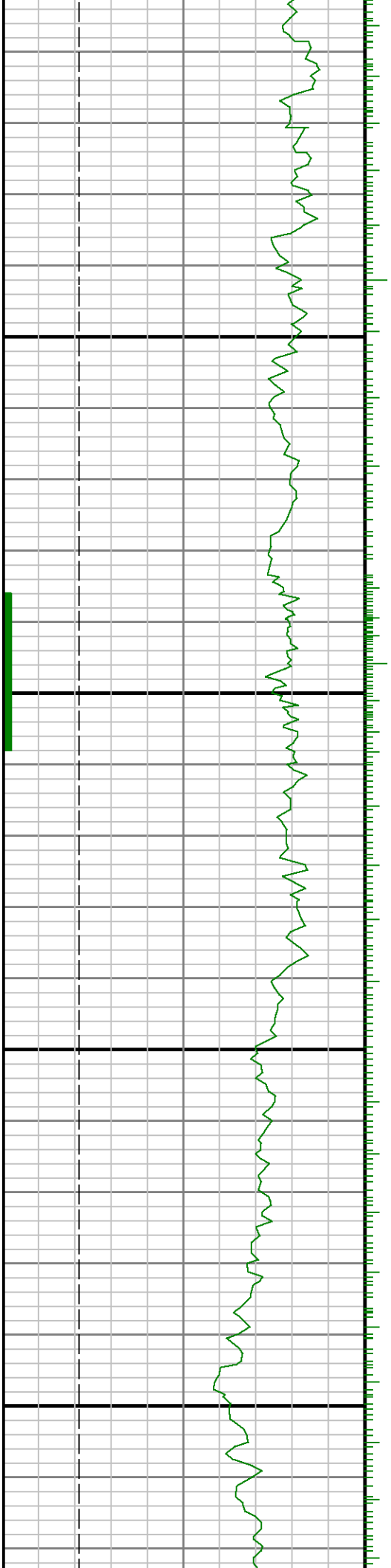


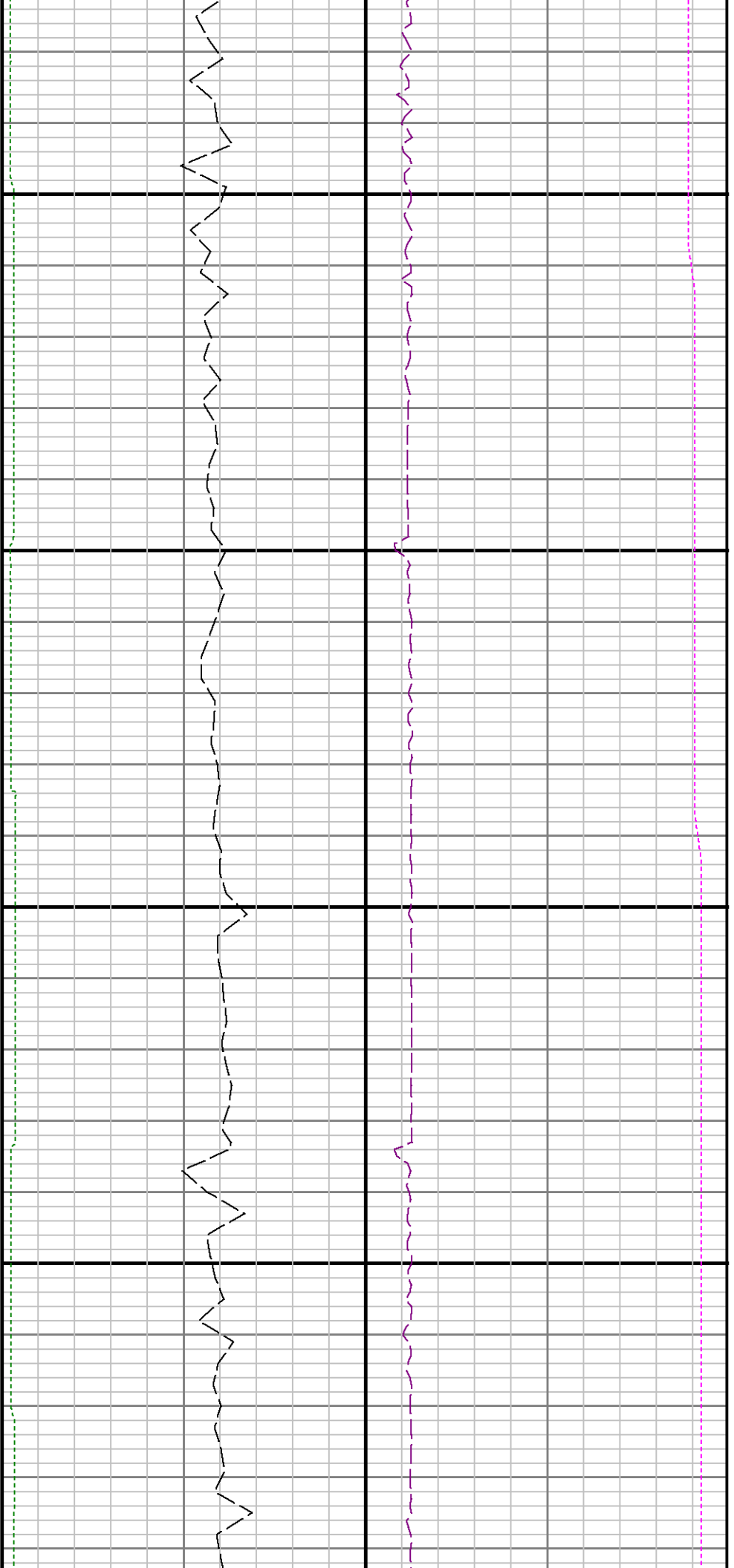




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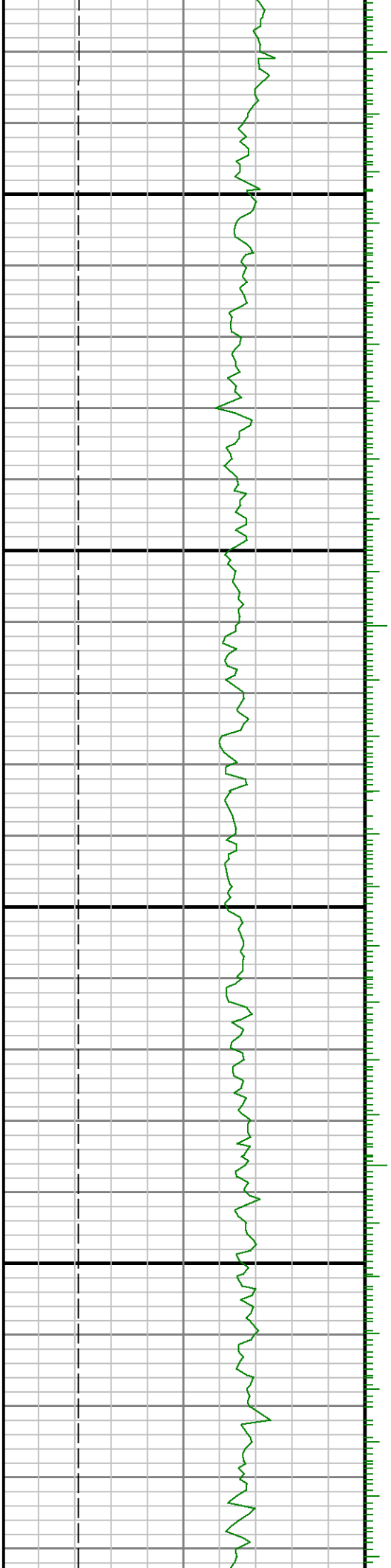
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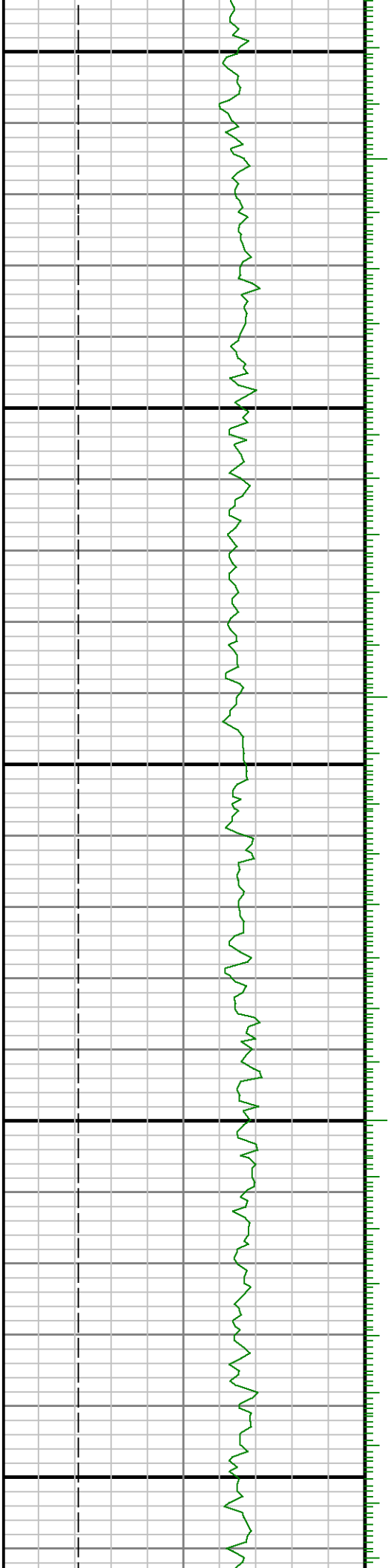


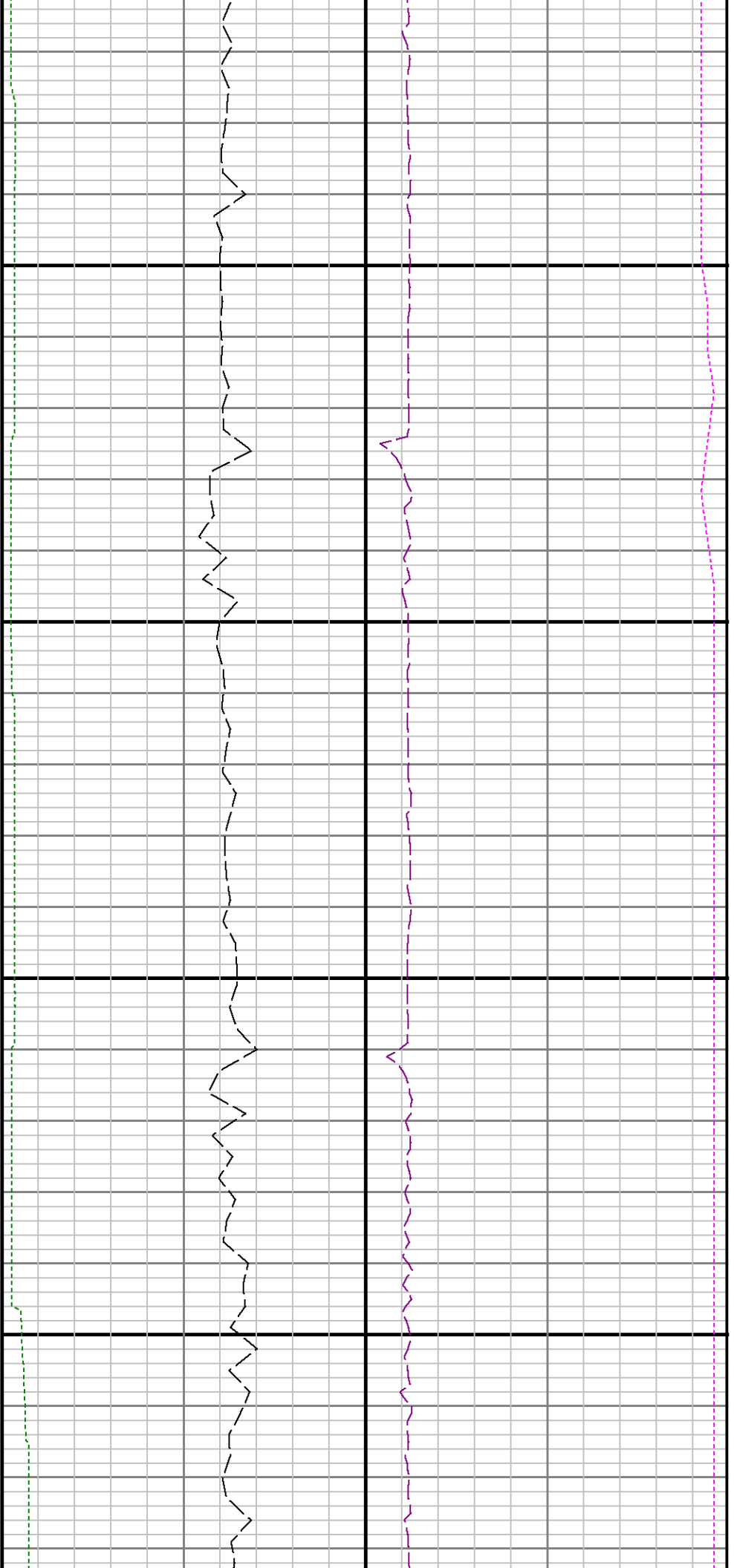


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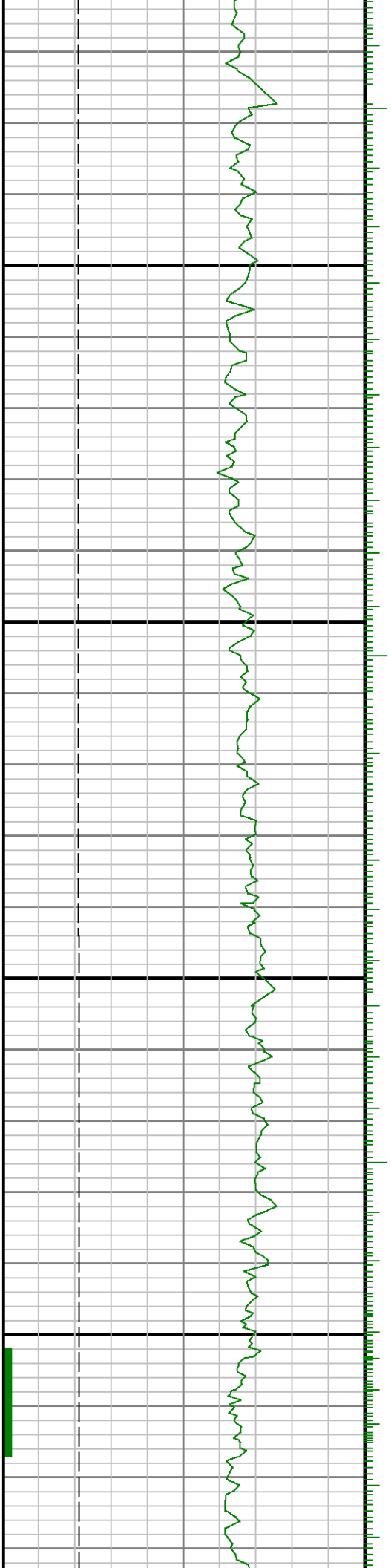
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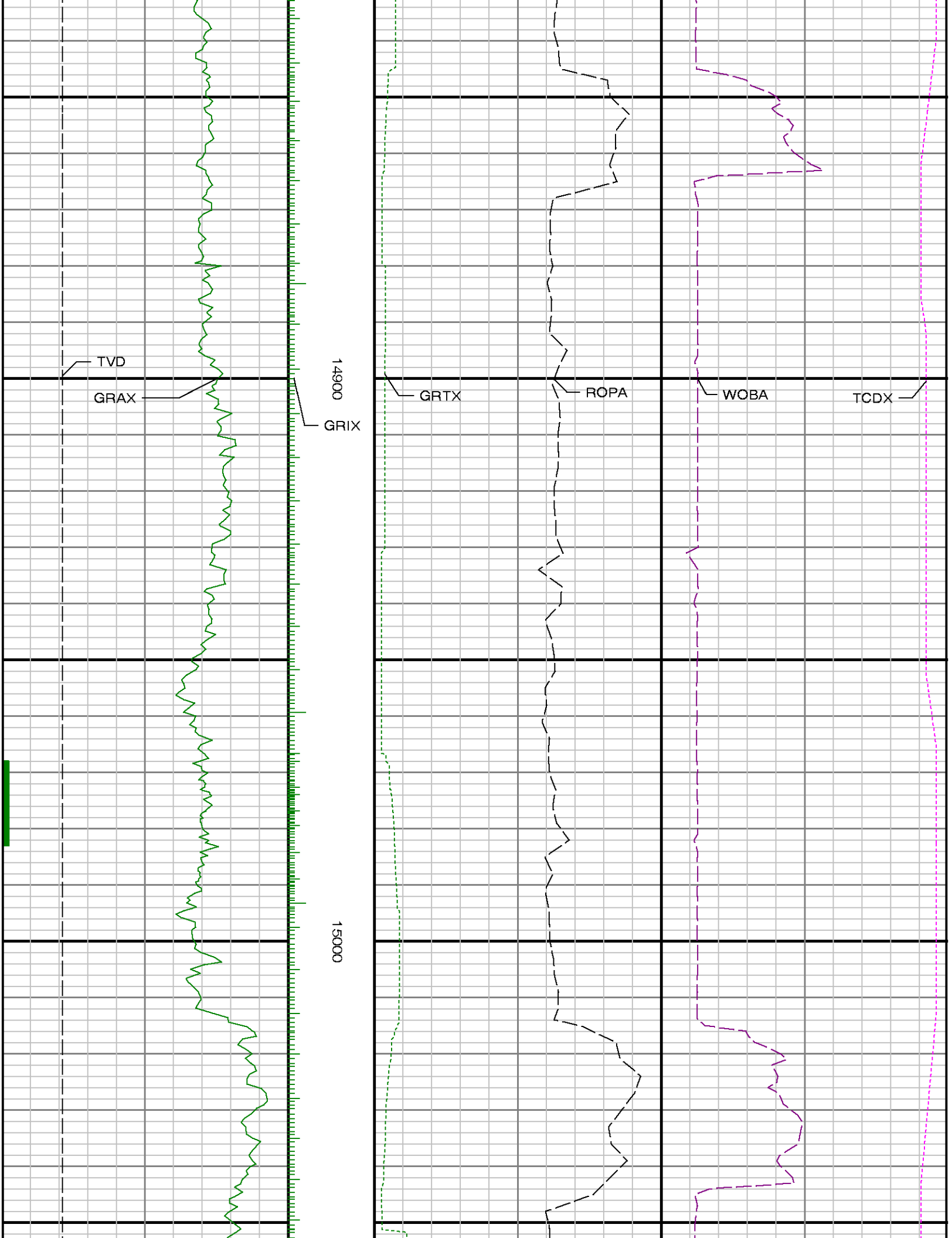


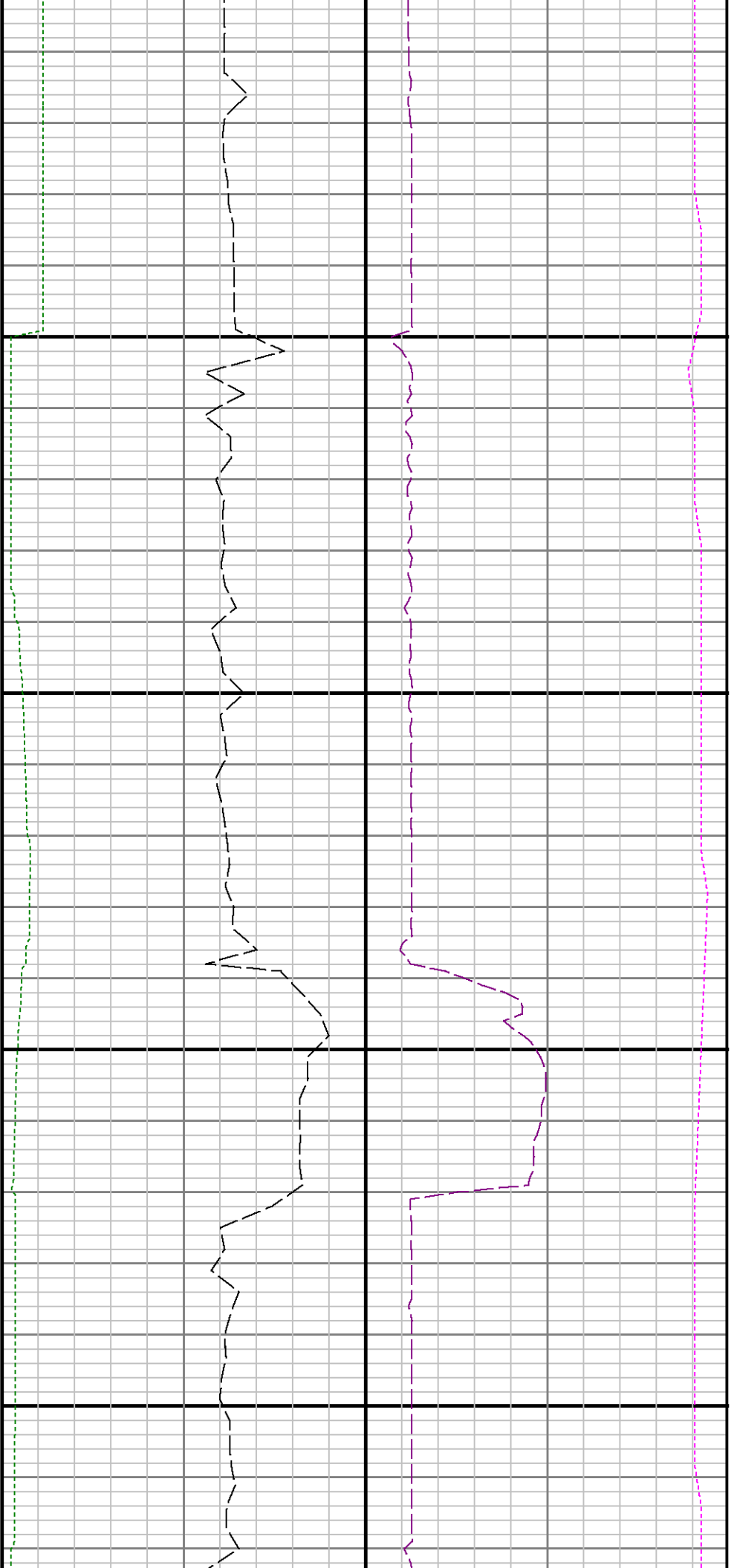


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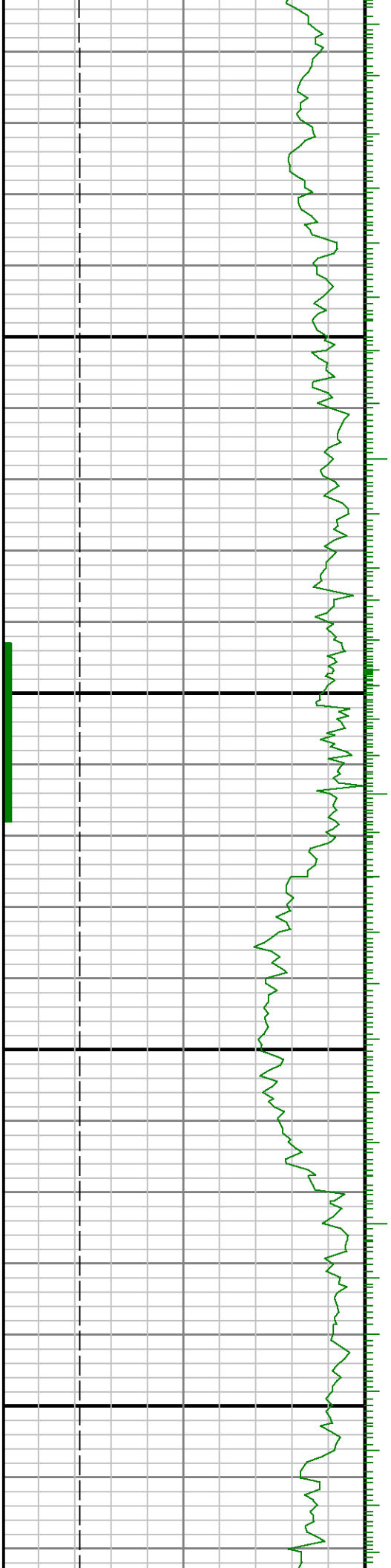


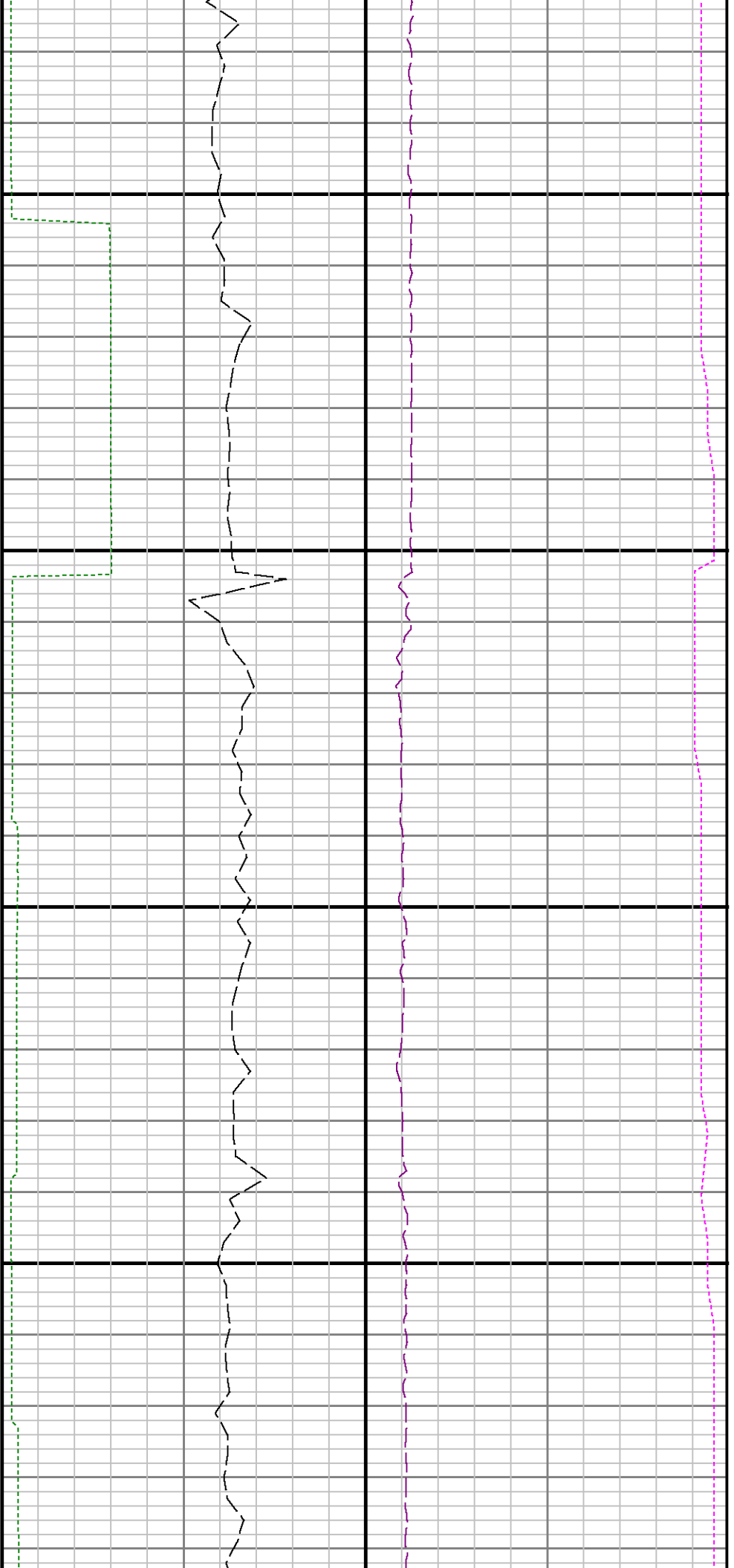




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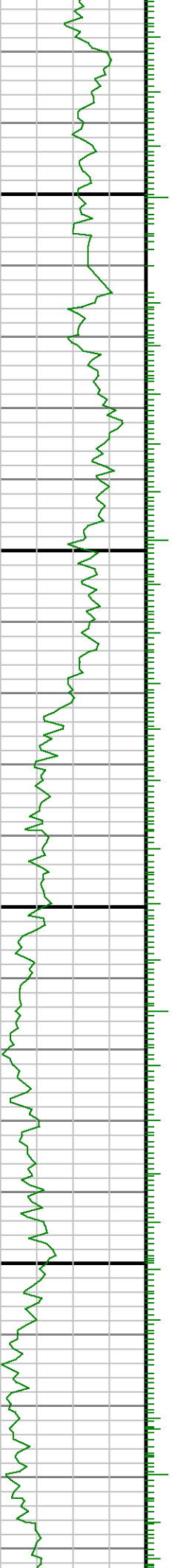
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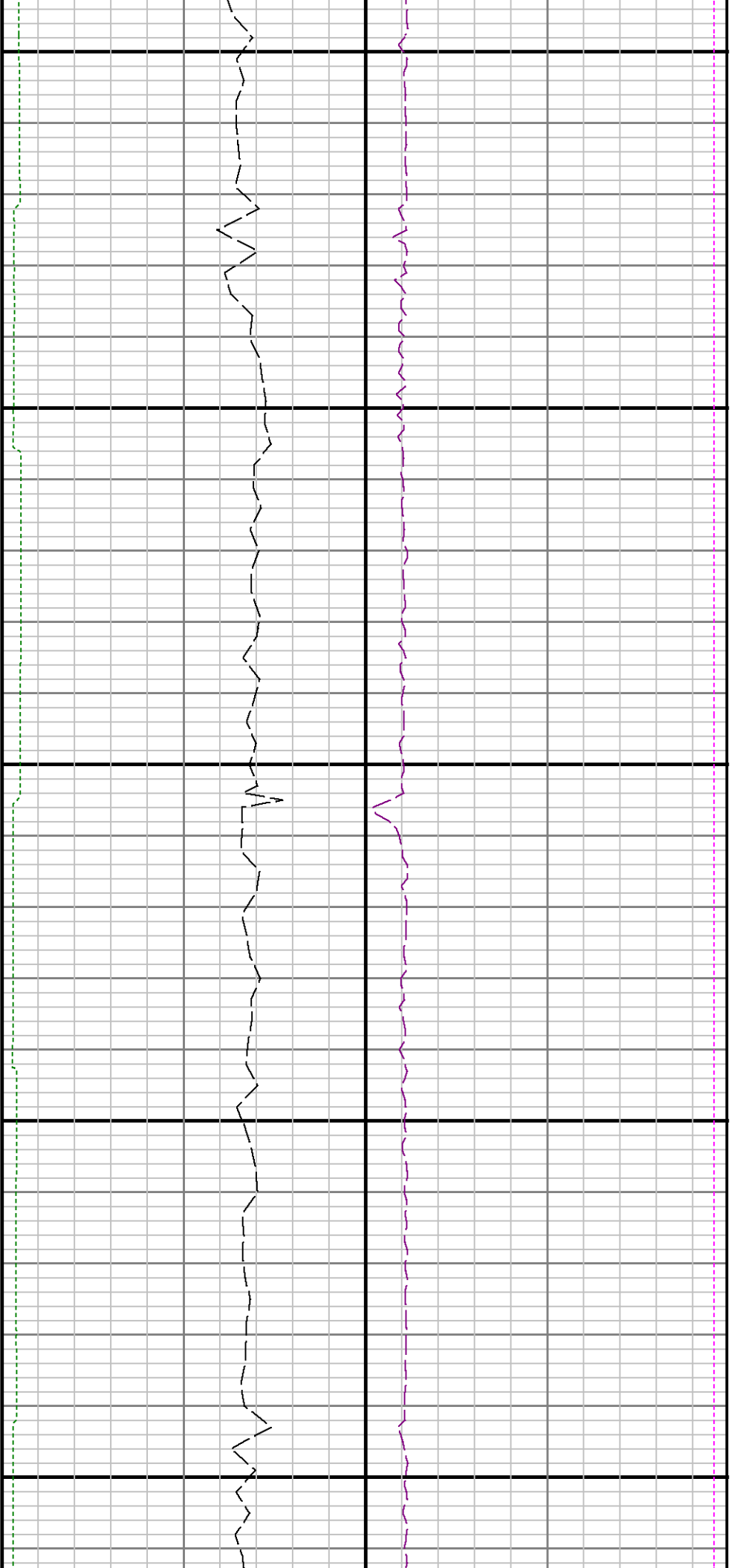




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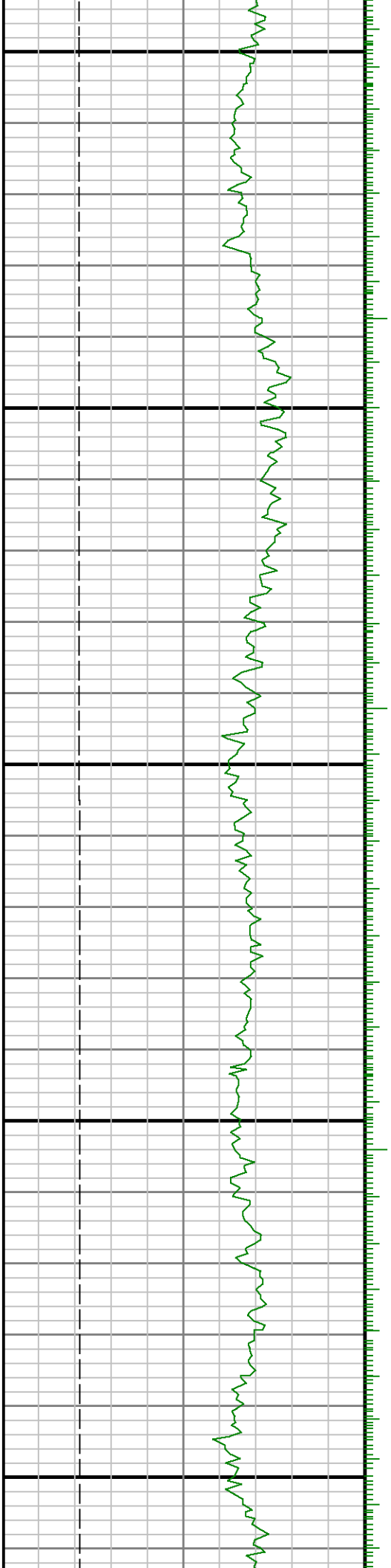


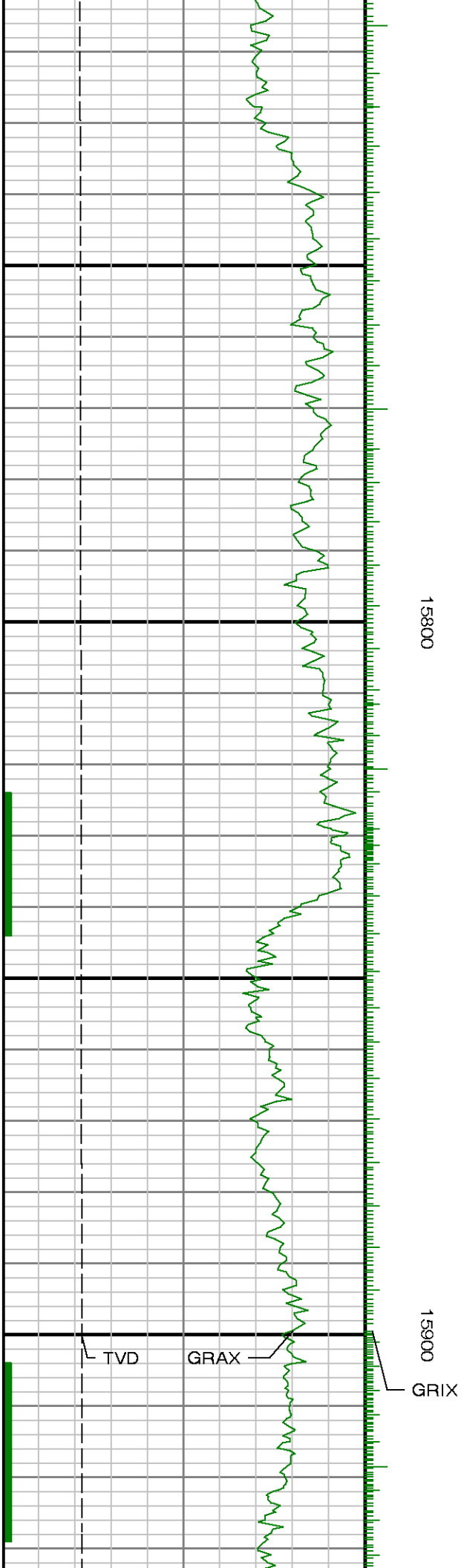


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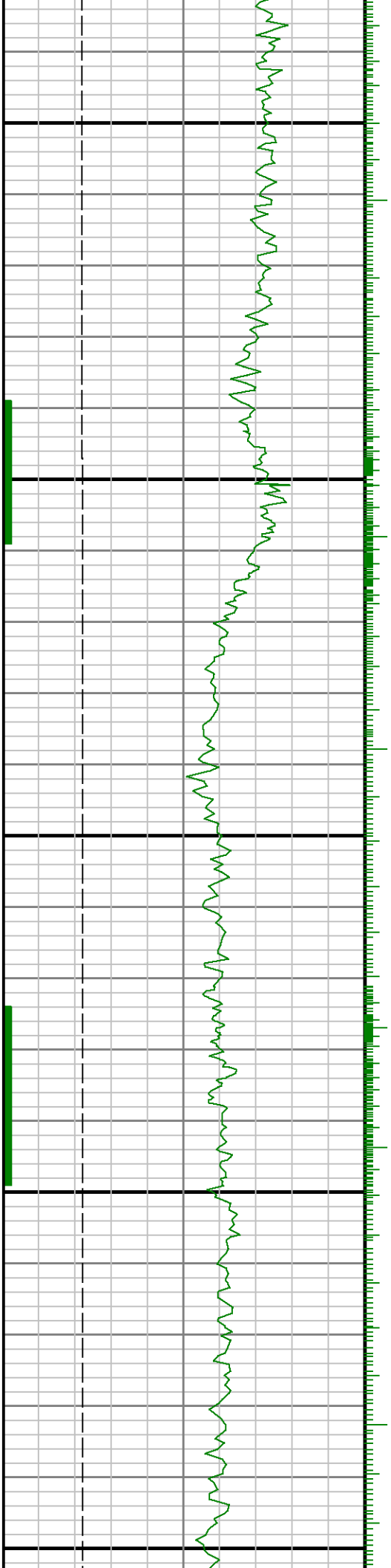


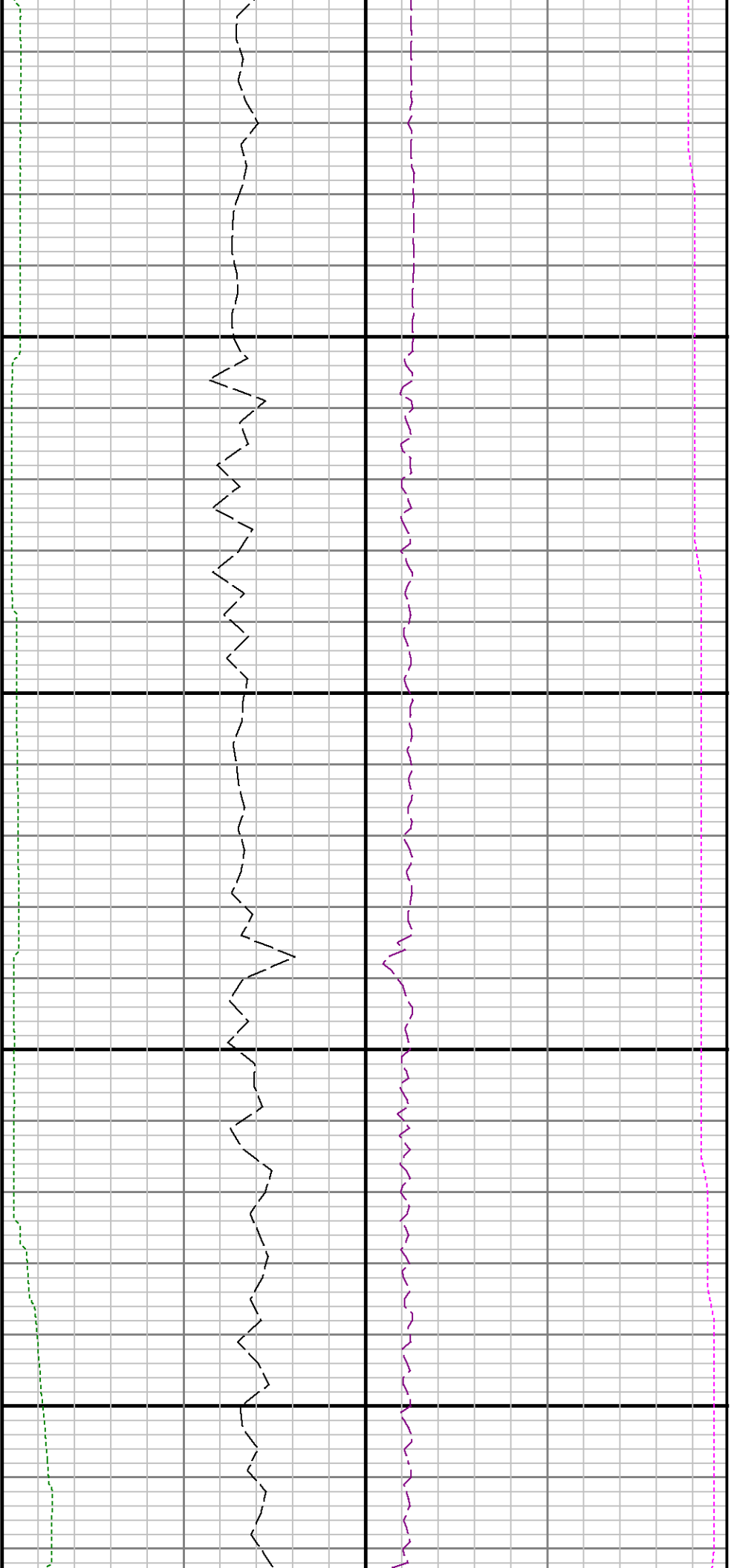




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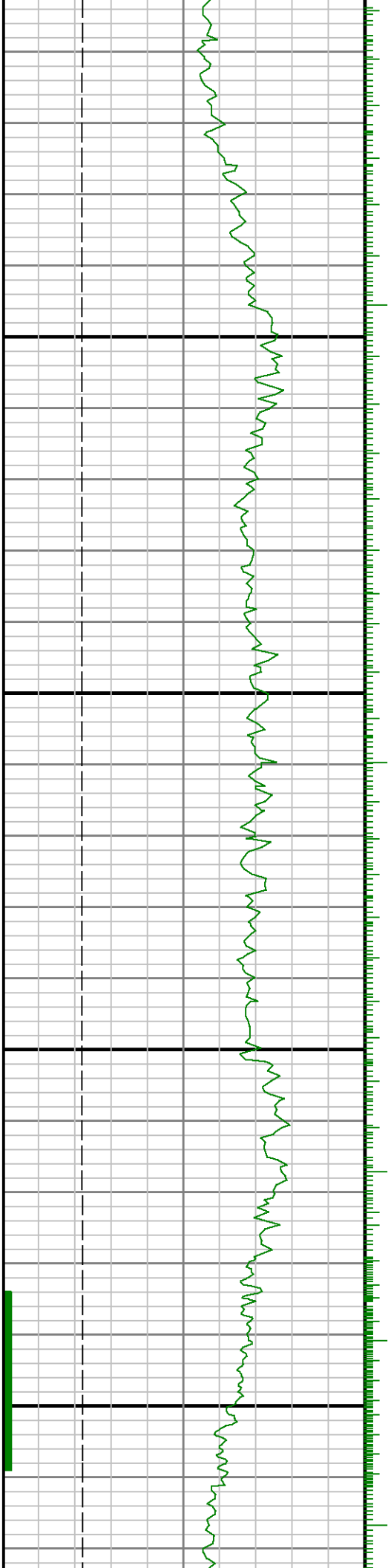
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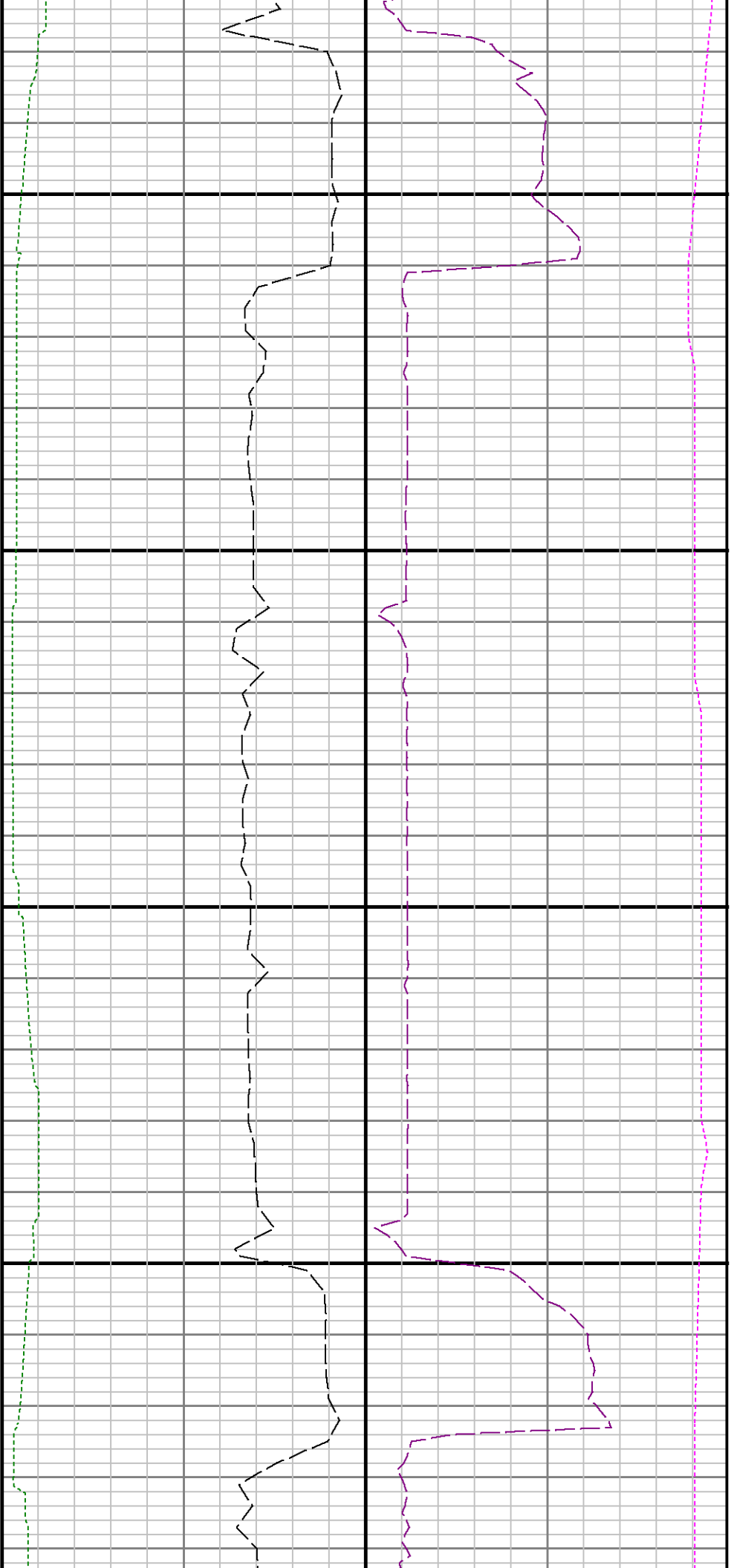




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16300





16400

16500

